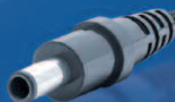
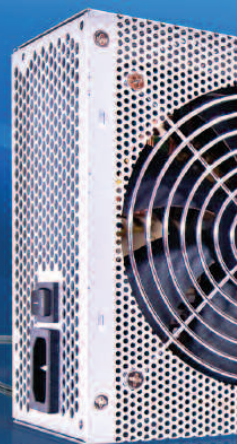




BIPOLAR

TRANSISTORS
AND SPECIAL
FUNCTIONS



diodes.com



COMPANY OVERVIEW

DIODES INCORPORATED'S PRODUCTS ARE DESIGNED FOR HIGH PERFORMANCE, ACROSS A WIDE RANGE OF EXISTING AND EMERGING APPLICATIONS

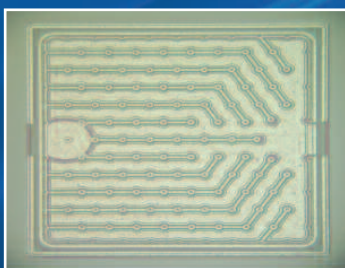
Diodes Incorporated is a leading global provider of Discrete, Analog, and Logic semiconductors.

Its global footprint includes sales offices in 5 countries and manufacturing locations in China, Europe and the USA.

A focus on product innovation, cost reduction, acquisitions and customer service has made Diodes Incorporated an industry leader.

Combining leading silicon and packaging technologies, Diodes provides a broad portfolio of discrete semiconductors comprising Bipolar Transistors, MOSFETs, Schottky diodes, SBR®, switching diodes and functional specific arrays to enable our customers' next generation designs.

The Diodes' Analog IC portfolio consists of 6 main areas: Power Management ICs, Standard Linear, Lighting, Sensors, Direct Broadcast by Satellite and Applications Specific Standard Products. Diodes IC portfolio also includes Standard Logic products.



SBR and PowerDI are registered trademarks of Diodes Incorporated.



THE LEADING EDGE ... BIPOLAR TRANSISTORS

By utilizing its wide line up of in-house packaging and superior silicon technology, Diodes is ideally positioned to meet your application needs for Bipolar transistors.

CONTINUED INNOVATION

The Bipolar transistor portfolio is built on successive generations of our innovative matrix emitter process. Years of know-how, leading edge designs and process innovation have extended our leadership in building ultra-low saturation, fast switching transistors.

BEST IN CLASS PERFORMANCE

With focus on optimizing processes for the lowest saturation voltage, reduced die area and subsequently improved switching performance, the consequent reduction in power dissipation allows ever smaller surface mount packages which still meet the demands of the target applications. The inherent ruggedness to ESD of the Bipolars along with their very low specific on-resistance also make them very cost effective alternatives

to MOSFET technology in a wide range of circuit topologies.

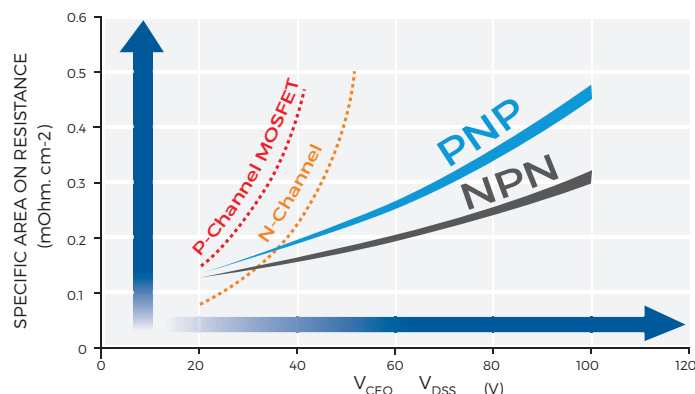
APPLICATION SPECIFIC PRODUCTS

Market demands for improved electronic systems solutions, whether in terms of improved efficiency, increased power density, or just cost reduction, drive all our application specific products. Avalanche transistors, gate drivers, regulator transistors and h-bridge devices have all been developed to create dedicated solutions driven by customer needs and combine the benefits of the exceptional transistor die performance with Diodes packaging expertise.

QUALITY

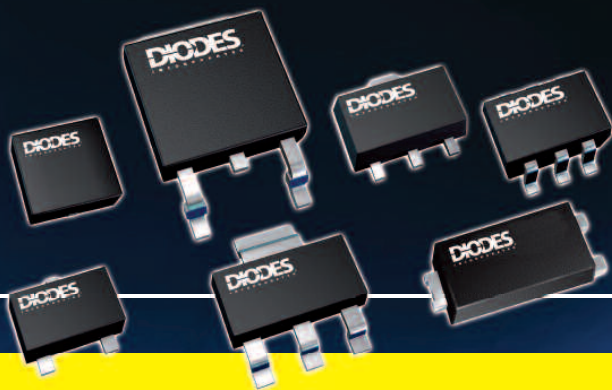
The majority of the products in the Diodes' Bipolar transistor portfolio are designed to meet the stringent requirements of the Automotive Electronic Council specification AECQ101. Furthermore all packages are available with 'green' mold compound.

LATEST GENERATION BIPOLARS OFFER LOWER SPECIFIC ON-RESISTANCE THAN MOSFETS



WORLD LEADING BIPOLAR PROCESSING AND DESIGNS

- Inventor of the Matrix emitter transistor structure.
- Industry leading low saturation voltage.
- Highest current handling capability for given package outlines.
- Reduced switching losses due to smaller die sizes.
- High minimum gains to reduce base drive requirements.
- Reverse blocking capability.



BIPOLAR

TRANSISTORS AND SPECIAL FUNCTIONS



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SPECIAL FUNCTIONS

SYNCHRONOUS RECTIFIER CONTROLLERS INCREASE POWER SUPPLY EFFICIENCY



THE DIODES ADVANTAGE

- High Drain Sense Voltage**
 200V Drain sense voltage allows direct connection to the synchronous MOSFET without the addition of external clamping circuitry
- Proportional Gate Drive**
 Prevents premature MOSFET turn-off as the drain current decays to zero, so maximising circuit efficiency by ensuring the body diode conduction losses are minimised.
- Wide Operating Voltage**
 Enables direct connection of V_{CC} pin to output rails eliminating the need for additional voltage regulator circuitry whilst giving sufficient headroom for transient over-voltage conditions.

SYNCHRONOUS RECTIFIER CONTROLLERS

Part Number	Supply Voltage V_{CC} (V)	Quiescent Current (mA)	Drain Voltage V_D (V)	Switching Frequency (kHz)	Turn-On Time t_{ON} (ns)	Turn-Off Threshold Voltage (mV)	Turn-Off Delay Time t_{OFF} (ns)	Gate Source Current I_{SOURCE} (A)	Gate Sink Current I_{SINK} (A)	Proportional Gate Drive Control	Minimum on time	Synch	Package
ZXGD3101N8	5 - 15	8	180	100	500	-16	15	2.5	2.5	Y	N	N	SO8
ZXGD3103N8	5 - 15	5	180	250	500	-10	15	2.5	5.1	Y	N	N	SO8
ZXGD3104N8	5 - 25	5	180	250	500	-10	15	2.1	5.1	Y	N	N	SO8
ZXGD3105N8	4.5 - 25	<1 adjustable	100	500	200	-10	15	1.2	5	Y	N	N	SO8
ZXGD3107N8	5 - 40	1.5	200	500	200	-10	15	2	2	Y	N	N	SO8
ZXGD3109N8	4.5 - 12	1.3	200	500	30	-4	30	2	4	N	Y	N	SO8
ZXGD3110N8	4.5 - 12	1.3	200	500	30	-4	30	2	4	N	Y	Y	SO8

OR-ING CONTROLLERS

Part Number	Supply Voltage V_{CC} (V)	Drain Voltage V_D (V)	Turn-Off Threshold Voltage (mV)	Source Current I_{SOURCE} (A)	Sink Current I_{SINK} (A)	Turn-Off Delay Time (t_{d2}) (ns)	Turn-Off Fall Time (t_f) (ns)	Package
ZXGD3108N8	25	40	-3	2	5	400	131	SO8
ZXGD3111N7	25	200	-3	2	5	400	131	SO7
ZXGD3112N7	25	400	-3	2	5	400	131	SO7

HIGH-SIDE/LOW-SIDE GATE DRIVERS

Part Number	Offset Voltage Max (V)	Inputs	Output Current I_{O+} Typ (mA)	Output Current I_{O-} Typ (mA)	t_{ON}/t_{OFF} Typ (ns)	t_r/t_f Typ (ns)	Package
DGD2110S16	500	HIN, LIN, SD	2500	2500	105 / 94	25 / 17	SO16W
DGD2101S8 / S14	600	HIN, LIN	290	600	160 / 150	70 / 35	SO8, SO14
DGD2106S8	600	HIN, LIN	290	600	220 / 200	100 / 35	SO8
DGD2106S14	600	HIN, LIN	290	600	220 / 200	100 / 35	SO14
DGD2181S8	600	HIN, LIN	1900	2300	180 / 220	40 / 20	SO8
DGD2181S14	600	HIN, LIN	1900	2300	180 / 220	40 / 20	SO14
DGD2113S16	600	HIN, LIN, SD	2500	2500	105 / 94	25 / 17	SO16W
DGD2190S8	600	HIN, LIN	4500	4500	140 / 140	25 / 20	SO8
DGD2190S14	600	HIN, LIN	4500	4500	140 / 140	25 / 20	SO14

HALF-BRIDGE GATE DRIVERS

Part Number	Offset Voltage Max (V)	Inputs	Output Current I_{O+} Typ (mA)	Output Current I_{O-} Typ (mA)	Internal Deadtime Typ (ns)	t_{ON} / t_{OFF} Typ (ns)	t_r / t_f Typ (ns)	Package
DGD2103AS8	600	HIN, LIN*	210	360	520	680 / 150	100 / 50	SO8
DGD2104AS8	600	IN, SD	210	360	520	680 / 150	100 / 50	SO8
DGD2103S8	600	HIN, LIN*	290	600	520	680 / 150	70 / 35	SO8
DGD2104S8	600	IN, SD	290	600	520	680 / 150	70 / 35	SO8
DGD2108S8	600	HIN, LIN*	290	600	540	220 / 200	100/35	SO8
DGD21084S14	600	HIN, LIN*	290	600	540 - 5000 #	220 / 200	100 / 35	SO14
DGD2184S8	600	IN, SD	1900	2300	400	680 / 270	40 / 20	SO8
DGD21844S14	600	IN, SD	1900	2300	400 - 5000 #	680 / 270	40 / 20	SO14

* = out of phase

= Adjustable by external resistor

SINGLE CHANNEL DRIVERS

Part Number	Offset Voltage Max (V)	Inputs	Output Current I_{O+} Typ (mA)	Output Current I_{O-} Typ (mA)	t_{ON} / t_{OFF} Typ (ns)	t_r / t_f Typ (ns)	Package
DGD2117S8	600	IN	290	600	125 / 105	75 / 35	SO8
DGD2118S8	600	IN*	290	600	125 / 105	75 / 35	SO8

* = out of phase

GATE DRIVER TRANSISTORS MINIMIZE SWITCHING LOSSES



THE DIODES ADVANTAGE

- Emitter-Follower Configuration**
 High-speed non-inverting gate drivers that can deliver very short propagation delay times of less than 10ns along with rise/fall times of less than 20ns.
- Resistant to Latch-up and Shoot-Through Issues**
 The rugged design makes these devices inherently resistant to latch-up and shoot-through issues.
- Optimized Pin-Out**
 In a space-saving low profile SOT26 package, the pin-out has been designed to simplify PCB layout and reduce parasitic trace inductances.

GATE DRIVER TRANSISTORS



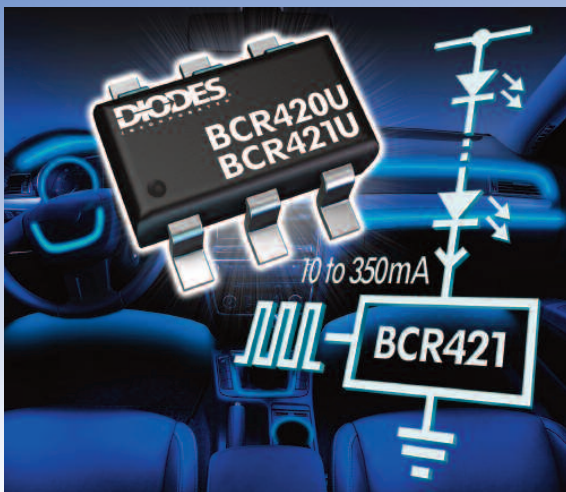
Part Number	V_{IN} & V_{CC} Max (V)	I_{SOURCE} @ $I_{IN} = 10mA$ (A)	I_{SINK} @ $I_{IN} = -10mA$ (A)	I_{PK} Max (A)	I_{IN} Max (A)	Switching Times Typ				Package
						$t_{d(rise)}$ (ns)	t_r (ns)	$t_{d(fall)}$ (ns)	t_f (ns)	
ZXGD3001E6	12	4.2	2.2	9	1	1.3	7.3	3	111	SOT26
ZXGD3002E6	20	2.2	2	9	1	1.25	8.3	1.6	10.8	SOT26
ZXGD3003E6	40	1.6	1.4	5	1	1.8	8.9	1.7	8.9	SOT26
ZXGD3004E6	40	1.9	1.9	8	1	1.1	13.4	0.95	12.4	SOT26
ZXGD3005E6	25	4 @ $I_{IN} = 1mA$	3.8 @ $I_{IN} = -1mA$	10	0.1	9.5	14.5	6	14	SOT26
ZXGD3006E6	40	4 @ $I_{IN} = 1mA$	3.8 @ $I_{IN} = -1mA$	10	0.1	9.5	14.5	6	14	SOT26
ZXGD3009DY	40	0.98	0.78	2	1	3.8	15	4	15	SOT363
ZXGD3009E6	40	0.98	0.78	2	1	3.8	15	4	15	SOT26

SPECIAL FUNCTIONS

LINEAR LED DRIVERS

Part Number	Type	Supply Voltage Min (V)	Supply Voltage Max (V)	I _{out} (mA)	I _{out} Max (mA)	P _D (W)	PWM Dimmable	Package
BCR420UW6	Low-side	1.4	40	10	350	1	N	SOT26
BCR421UW6	Low-side	1.4	40	10	350	1	Y	SOT26
BCR401UW6	High-side	1.4	40	10	250	1	N	SOT26
BCR402UW6	High-side	1.4	40	20	65	1	N	SOT26
BCR405UW6	High-side	1.4	40	50	65	1	N	SOT26

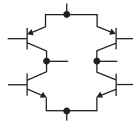
LINEAR LED DRIVERS SIMPLIFY THE DRIVING OF LED STRINGS



THE DIODES ADVANTAGE

- **10mA to 350mA**
Adjustable CCR enables platform designs based on a single device to be used across multiple LED strip applications – easing manufacturer's overall qualification.
- **1.4V to 40V Supply Voltage**
Low voltage overhead with sufficient headroom for over-voltage conditions such as LEDs failing short.
- **Negative Temperature Coefficient**
Self-protects and allows current sharing between parallel CCRs.
- **Increased Reliability**
Monolithically integrating a transistor, diodes and resistors: both simplifies the system by reducing component count and increases overall reliability.

H-BRIDGE TRANSISTORS



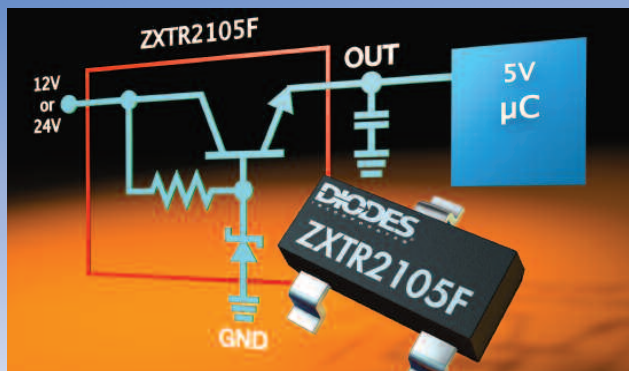
Part Number	Product Type	V _{CEO} (V)	I _C (A)	I _{CM} (A)	P _D (W)	h _{FE} Min	@ I _C (A)	V _{CE(sat)} Max (mV)	@ I _C (A)	@ I _B (mA)	f _T Min (MHz)	Package
ZHB6718	2 x NPN + 2 x PNP	20 -20	2.5 -2.5	6 -6	2	200 150	2 -2	150 -200	1 -1	10 -20	140 180	SM8
ZHB6790	2 x NPN + 2 x PNP	40 -40	2 -2	6 -6	2	150 150	2 -2	500 -450	1 -1	5 -10	100 150	SM8
ZHB6792	2 x NPN + 2 x PNP	70 70	1 1	2 2	2	150 200	1 1	150 500	1 1	10 20	150 100	SM8

AVALANCHE TRANSISTORS



Part Number	Product Type	V _{CBO} (V)	V _{CEO} (V)	I _{CM} (A)	P _D (W)	I _{SA} (A)	@ V _C (V)	@ C _{CE} (pF)	h _{FE} Min	@ I _C (A)	f _T Min (MHz)	Package
FMMT413	NPN	150	50	50	0.33	25	130	4700	50	10	150	SOT23
ZTX415	NPN	260	100	60	0.68	25	250	620	25	10	40	E-Line
FMMT415	NPN	260	100	60	0.33	25	250	620	25	10	40	SOT23
FMMT417	NPN	320	100	60	0.33	25	250	620	25	10	40	SOT23

HIGH VOLTAGE LINEAR REGULATOR TRANSISTORS



THE DIODES ADVANTAGE

- High Input Voltage Rating**
 Ensures that the input will effectively tolerate voltages up to a maximum of 100V, ensuring a good safety margin in the event of transient over-voltage conditions.
- Line and Load Regulation**
 Safeguards continuous operation by eliminating latch-up during transient voltage drops.
- Smaller Footprint**
 Monolithically integrating a transistor, Zener diode and resistor into a SOT23 package to reduce footprint whilst increasing power density and reliability.

VOLTAGE REGULATOR TRANSISTORS

Part Number	Operating Input Voltage Min (V)	Operating Input Voltage Max (V)	Output Voltage (V)	Output Voltage Tolerance (%)	Output Current (mA)	Enable Function	Quiescent Current Typ (mA)	PSRR typ (dB)	Package
ZXTR1005K4	10	100	5	2	50	Yes	0.3	57	TO252-4L
ZXTR1005PD8	10	100	5	2	50	Yes	0.3	57	PowerDI5060-8 Type B
ZXTR2105F	7	60	5	5	15	No	0.4	46	SOT23
ZXTR2005K	10	100	5	10	50	No	0.27	45	TO252 (DPAK)
ZXTR2005P5	10	100	5	10	40	No	0.27	45	PowerDI®5
ZXTR2005Z	10	100	5	10	30	No	0.27	45	SOT89
ZXTR2108F	10	60	8	10	15	No	0.4	45	SOT23
ZXTR2008K	12	100	8	10	50	No	0.27	38	TO252 (DPAK)
ZXTR2008P5	12	100	8	10	40	No	0.27	38	PowerDI®5
ZXTR2008Z	12	100	8	10	30	No	0.27	38	SOT89
ZXTR2112FF	15	100	12	10	36	No	0.24	45	SOT23F
ZXTR2112F	15	60	12	10	15	No	0.4	50	SOT23
ZXTR2012K	15	100	12	10	50	No	0.24	45	TO252 (DPAK)
ZXTR2012P5	15	100	12	10	40	No	0.24	45	PowerDI®5
ZXTR2012Z	15	100	12	10	30	No	0.24	45	SOT89

RELAY DRIVERS

Part Number	Configuration	Maximum V_{CEO} / V_{CC} (V)	Maximum I_C (mA)	R1 (K Ω)	R2 (K Ω)	Package
DRDC3105E6	Dual	6	500	1	33	SOT26
DRDC3105F	Single	6	500	1	33	SOT23

INTEGRATED RELAY DRIVER



THE DIODES ADVANTAGE

- 6.6V Zener Clamp**
 Clamps the induced coil voltage and dissipates the inductive energy eliminating the need for an external free-wheeling diode.
- Fully Integrated**
 Monolithic integration of several discrete components to reduce component count and improve reliability.
- Logic Level Input**
 Drive directly from 3 to 5V signals with robust output-input isolation to protect sensitive input circuitry.

BIPOLAR TRANSISTORS

NPN UP TO 25V



Part Number	V _{CEO} (V)	I _C (A)	I _{CM} (A)	P _D (W)	h _{FE}				V _{CE(sat)}				f _T (MHz)	R _{CE(sat)} (mΩ)	Package
					Min	@ I _C (A)	Min	@ I _C (A)	Max (mV)	@ I _C / I _B (A/mA)	Max (mV)	@ I _C / I _B (A/mA)			
FZT1047A	10	5	20	2.5	300	1	200	5	40	0.5/10	350	5 / 25	150	44	SOT223
FCX1047A	10	4	20	2	300	1	200	4	40	0.5/10	240	4 / 50	150	40	SOT89
ZXTN25012EZ	12	6.5	15	2.4	500	0.01	185	6.5	60	1/10	130	2 / 20	260	25	SOT89
ZXTN25012EFH	12	6	15	1.25	500	0.01	300	4	32	1/100	190	6 / 120	260	23	SOT23
ZXTN07012EFF	12	4.5	10	1.5	500	0.1	330	4.5	85	1/10	150	2 / 20	150	43	SOT23F
FZT688B	12	4	10	2	500	0.1	400	3	40	0.1/1	400	4 / 50	150	83	SOT223
FCX688B	12	3	10	1	500	0.1	400	3	40	0.1/1	350	3 / 10	150	-	SOT89
ZTX688B	12	3	10	1	500	0.1	400	3	40	0.1/1	350	3 / 20	150	-	E-Line
2DD2678	12	3	6	2	270	0.5	-	-	250	1.5/30	-	-	170	-	SOT89
ZXTN25012EFL	12	2	15	0.35	500	0.01	210	5	85	1/10	130	2 / 40	260	46	SOT23
2DD2661	12	2	4	2	270	0.2	-	-	180	1/50	-	-	170	-	SOT89
2DD2652	12	1.5	3	0.5	270	0.2	-	-	200	0.5/25	-	-	260	-	SOT323
ZXTN23015CFH	15	6	12	1.25	200	0.5	150	6	30	1/100	180	6 / 120	235	19	SOT23
ZXT13N15DE6	15	5	15	1.1	300	1	200	5	70	1/10	200	5 / 100	72	29	SOT26
ZXTN25015DFH	15	5	15	1.25	300	0.01	150	5	80	1/10	215	5 / 100	150	25	SOT23
ZXTN617MA	15	4.5	15	1.5	300	0.2	150	5	14	0.1/10	280	4.5 / 50	80	45	DFN2020B-3
ZXT10N15DE6	15	4	13	1.1	300	0.2	200	3	14	0.1/10	260	4 / 50	80	50	SOT26
FCX617	15	3	12	2	300	0.2	200	3	14	0.1/10	300	4 / 50	120	50	SOT89
ZXT11N15DF	15	3	5	0.625	300	0.2	200	3	80	1/10	150	3 / 150	145	37	SOT23
FMMT617	15	3	12	0.625	300	0.2	200	3	14	0.1/10	200	3 / 50	80	50	SOT23
ZUMT617	15	1.5	5	0.385	300	0.1	200	1	20	0.1/10	245	1.5 / 20	180	135	SOT323
DSS2515M	15	0.5	1	0.25	200	0.01	90	0.5	25	0.01/0.5	250	0.5/50	250	500	DFN1006-3
FZT1048A	17.5	5	20	2.5	300	1	180	5	45	0.5/10	350	5 / 25	150	50	SOT223
ZTX1048A	17.5	4	20	1	300	1	220	4	45	0.5/10	245	4 / 20	150	-	E-Line
ZXTN19020DG	20	9	20	3	300	0.1	130	9	70	1/10	100	2 / 20	160	20	SOT223
ZXTN19020DZ	20	7.5	20	2.4	300	0.1	150	7.5	70	1/10	100	2 / 20	160	21	SOT89
ZXTN19020CFF	20	7	15	1.5	200	0.1	100	7	65	1/10	70	2 / 40	150	18	SOT23F
ZXTN25020DG	20	7	15	3	300	0.01	250	2	75	1/20	180	2 / 20	215	31	SOT223
ZXTN19020DFF	20	6.5	20	1.5	300	0.1	160	6.5	65	1/10	95	2 / 20	160	18	SOT23F
ZXTN25020DZ	20	6	15	2.4	300	0.01	250	2	75	1/20	180	2 / 20	215	30	SOT89
2DD2098R	20	5	10	1	180	0.5	-	-	1000	4/100	-	-	220	-	SOT89
ZXT13N20DE6	20	4.5	15	1.1	300	1	200	5	75	1/10	230	4.5/45	90	38	SOT26
ZXTN25020BFH	20	4.5	10	1.25	100	0.01	75	4.5	45	1/100	240	4.5/90	185	27	SOT23
ZXTN25020CFH	20	4.5	10	1.25	200	0.01	90	4.5	45	1/100	220	4.5/90	185	28	SOT23
ZXTN25020DFH	20	4.5	15	1.25	300	0.01	120	4.5	43	1/100	265	4.5/90	215	28	SOT23
ZXTN618MA	20	4.5	12	1.5	300	0.2	100	6	15	0.1/10	270	4.5/125	100	47	DFN2020B-3
ZXT10N20DE6	20	3.5	19	1.1	300	0.2	200	2	15	0.1/10	250	3.5/100	100	55	SOT26
ZTX618	20	3.5	10	1	300	0.2	170	3	15	0.1/10	255	3.5/50	100	-	E-Line
FZT689B	20	3	8	2	500	0.1	400	2	100	0.1/0.5	450	3 / 20	150	92	SOT223
ZTX689B	20	3	8	1	500	0.1	400	2	100	0.1/0.5	500	2 / 10	150	-	E-Line
ZXT11N20DF	20	2.5	5	0.625	300	0.1	150	3	100	1/10	130	2.5 / 250	160	40	SOT23
FMMT618	20	2.5	6	0.625	300	0.2	200	2	15	0.1/10	200	2.5 / 50	100	50	SOT23
DSS20201L	20	2	4	1.2	200	0.01	200	2	10	0.1/10	90	1 / 10	150	50	SOT23
ZXTN25020DFL	20	2	8	0.35	300	0.01	220	2	100	1 / 20	225	2 / 20	215	55	SOT23

NPN UP TO 25V (CONTINUED)

Part Number	V _{CEO} (V)	I _C (A)	I _{CM} (A)	P _D (W)	h _{FE}				V _{CE(sat)}				f _T (MHz)	R _{CE(sat)} (mΩ)	Package
					Min	@ I _C (A)	Min	@ I _C (A)	Max (mV)	@ I _C / I _B (A/mA)	Max (mV)	@ I _C / I _B (A/mA)			
DSS4320T	20	2	5	0.6	220	0.1	200	2	120	1/50	230	2/40	100	35	SOT23
DSS4220V	20	2	4	0.6	220	0.1	200	1	55	0.1/1	175	1/100	260	175	SOT563
ZXTN26020DMF	20	1.5	4	1	300	0.1	270	1	125	1/50	290	2/40	260	90	DFN1411-3
FMMTL618	20	1.25	4	0.5	300	0.2	200	1	35	0.1/10	280	1.25/100	195	140	SOT23
ZUMT618	20	1.25	4	0.385	300	0.1	100	1	25	0.1/10	250	1.25/50	210	125	SOT323
ZXTN2005G	25	7	20	3	300	1	200	7	40	0.5/10	230	6.5/150	150	30	SOT223
ZXTN2005Z	25	5.5	20	2.1	300	1	200	7	45	1/100	200	6.5/150	150	25	SOT89
ZTX869	25	5	20	1.2	300	1	250	5	50	0.5/10	220	5/100	100	-	E-Line
DXT3150	25	5	-	1	250	0.5	150	2	350	3/150	500	4/200	220	-	SOT89
DZT3150	25	5	-	2	250	0.5	150	2	350	3/150	500	4/200	150	-	SOT223
ZTX1049A	25	4	20	1	300	1	200	4	45	0.5/10	220	4/50	180	-	E-Line
FZT649	25	3	8	2	100	1	75	2	300	1/100	600	3/300	150	-	SOT223
ZXTN649F	25	3	6	0.5	200	0.1	155	2	120	1/100	300	3/300	-	77	SOT23
ZTX649	25	2	6	1	100	1	75	2	300	1/100	500	2/200	150	-	E-Line
2DD1621T	25	2	-	1	200	0.1	65	1.5	400	1.5/75	-	-	300	-	SOT89

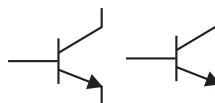
DFN LEADLESS PACKAGES



THE DIODES ADVANTAGE

- Small Outline Packages**
 Small form factor allows designer's to reduce PCB area while delivering better performance than equivalent transistors in much larger packages.
- Excellent Thermal Performance**
 Lower thermal resistance than an equivalent SOT packages with smaller footprint.
- Very Low Saturation Voltage and Good Gain Hold-Up**
 Provides excellent performance relative to footprint to ensure high power density.

DUAL NPN TRANSISTORS UP TO 25V



Part Number	V _{CEO} (V)	I _C (A)	I _{CM} (A)	P _D (W)	h _{FE}				V _{CE(sat)}				f _T (MHz)	R _{CE(sat)} (mΩ)	Package
					Min	@ I _C (A)	Min	@ I _C (A)	Max (mV)	@ I _C / I _B (A/mA)	Max (mV)	@ I _C / I _B (A/mA)			
ZXTD617MC	15	4.5	15	1.5	300	0.2	150	5	100	1/10	280	4.5/50	120	45	DFN3020B-8
ZDT1048	17.5	5	20	2.75	300	0.5	250	5	75	1/10	300	5/50	150	-	SM8
ZXTD618MC	20	4.5	12	1.5	300	0.2	100	6	150	1/10	135	2/50	140	47	DFN3020B-8
ZXTI2N20DX	20	3.5	15	1.25	300	1	200	3.5	100	1/10	200	3.5/50	112	40	MSOP-8
ZDT1049	25	5	20	2.75	300	0.5	200	4	80	1/10	220	4/50	180	-	SM8

NPN & PNP UP TO 25V



Part Number	V_{CE0} (V)	I_C (A)	I_{CM} (A)	P_D (W)	h_{FE}				$V_{CE(sat)}$				f_T (MHz)	$R_{CE(sat)}$ (m Ω)	Package
					Min	@ I_C (A)	Min	@ I_C (A)	Max (mV)	@ I_C / I_B (A/mA)	Max (mV)	@ I_C / I_B (A/mA)			
ZXTC2061E6	12 -12	5 -3.5	12 -10	1.1	480 290	1 -1	260 75	5 -3.5	60 -265	1/10 -1/-10	80 -360	2/40 -2/-40	260 310	25 45	SOT26
ZXTC6717MC	15 -12	4.5 -4	15 -12	1.5	300 300	0.2 -0.1	150 180	5 -2.5	100 -140	1/10 -1/-10	280 -300	4.5/50 -3/-50	80 100	45 60	DFN3020B-8
ZXTD6717E6	15 -12	1.5 -1.25	5 -3	1.1	250 200	0.5 -0.5	75 30	3 -3	100 -175	0.5/10 -0.5/-10	245 -215	1.5/20 -1/-20	180 220	135 150	SOT26
ZXTC6718MC	20 -20	4.5 -3.5	12 -6	1.5	300 300	0.2 -0.1	100 150	6 -2	150 -220	1/10 -1/-20	135 -250	2/50 -1.5/-50	100 150	47 64	DFN3020B-8
ZXTC2062E6	20 -20	4 -3.5	10 -10	1.1	280 170	1 -1	140 65	4 -3.5	75 -135	1/20 -1/-20	190 -250	4/200 -3.5/-175	215 290	35 54	SOT26

PNP UP TO 25V



Part Number	V_{CE0} (V)	I_C (A)	I_{CM} (A)	P_D (W)	h_{FE}				$V_{CE(sat)}$				f_T (MHz)	$R_{CE(sat)}$ (m Ω)	Package
					Min	@ I_C (A)	Min	@ I_C (A)	Max (mV)	@ I_C / I_B (A/mA)	Max (mV)	@ I_C / I_B (A/mA)			
FZT968	-12	-6	-20	3	300	-0.5	150	-10	-130	-0.5/-5	-450	-6/-250	80	44	SOT223
FZT1147A	-12	-5	-20	2.5	250	-0.5	150	-5	-110	-0.5/-2.5	-400	-5/-50	115	-	SOT223
ZTX968	-12	-4.5	-20	1.2	300	-0.5	150	-10	-100	-0.5/-5	-300	-5/-200	80	-	E-Line
ZXTP25012EZ	-12	-4.5	-10	2.4	500	-0.01	40	-4.5	-70	-1/-100	-355	-2/-40	310	45	SOT89
ZXTI3PI2DE6	-12	-4	-15	1.1	300	-1	200	-4	90	-1/-10	250	-4/-50	55	37	SOT26
ZXTP07012EFF	-12	-4	-8	1.5	500	-0.01	230	-4	-165	-1/-5	-350	-2/-10	100	50	SOT23F
ZXTP25012EFH	-12	-4	-10	1.25	500	-0.01	300	-1	-65	-1/-100	-350	-2/-40	310	40	SOT23
ZTX1147A	-12	-4	-20	1	250	-0.5	170	-4	-130	-1/-6	-235	-4/-70	115	-	E-Line
ZXTP717MA	-12	-4	-12	1.5	300	-0.1	60	-8	-17	-0.1/-10	-140	-1/-10	100	60	DFN2020B-3
ZXTI0PI2DE6	-12	-3	-10	1.1	300	-0.1	180	-2.5	-17	-0.1/-10	-150	-1.5/-50	80	65	SOT26
FCX1147A	-12	-3	-20	2	250	-0.5	150	-5	-110	-0.5/-2.5	-250	-3/-30	115	53	SOT89
FZT717	-12	-3	-10	2	300	-0.1	160	-3	-150	-1/-10	-320	-3/-50	80	-	SOT223
FCX717	-12	-3	-10	1	300	-0.1	160	-3	-20	-0.1/-10	-320	-3/-50	80	77	SOT89
2DB1713	-12	-3	-6	2	270	-0.5	-	-	-250	-1.5/-30	-	-	180	-	SOT89
FMMT717	-12	-2.5	-10	0.625	300	-0.1	180	-2.5	-17	-0.1/-10	-170	-1.5/-50	80	72	SOT23
2DB1697	-12	-2	-4	2	270	-0.2	-	-	-180	-1/-50	-	-	140	-	SOT89
DSL12AW	-12	-2	-3	0.45	100	-0.5	100	-1	-160	-0.5/-10	-290	-1/-20	180	-	SOT363
2DB1689	-12	-1.5	-3	0.5	270	-0.2	-	-	-200	-0.5/-25	-	-	300	-	SOT323
FMMTL717	-12	-1.25	-4	0.5	300	-0.1	180	-1	-140	-0.5/-20	-290	-1.25/-50	205	160	SOT23
ZUMT717	-12	-1.25	-3	0.385	300	-0.1	125	-1.25	-40	-0.1/-10	-215	-1/-50	220	150	SOT323
2DA2018	-12	-0.5	-1	0.15	270	-0.01	-	-	-250	-0.2/-10	-	-	260	-	SOT523
ZXTP23015CFH	-15	-5	-10	1.25	200	-0.5	140	-6	-36	-1/-100	-120	-3/-60	270	20	SOT23
ZXTP25015DFH	-15	-4	-10	1.25	200	-1	90	-4	-150	-1/-10	-175	-2/-40	295	33	SOT23
FZT788B	-15	-3	-8	2	400	-1	150	-6	-250	-1/-5	-500	-3/-50	100	93	SOT223
ZTX788B	-15	-3	-8	1	400	-1	150	-6	-150	-0.5/-2.5	-250	-1/-5	100	-	E-Line
ZTX788A	-15	-3	-10	1	250	-1	80	-10	-35	-0.1/-2	-320	-2/-20	100	-	E-Line
DSS3515M	-15	-0.5	-1	0.25	200	-0.01	90	-0.5	-25	-0.01/-0.5	-250	-0.5/-50	100	500	DFN1006-3
DXTP19020DP5	-20	-8	-15	3	300	-0.1	200	-2	-130	-1/-10	-145	-2/-40	176	28	PowerDI [®] 5
ZXTP19020DG	-20	-8	-15	3	300	-0.1	200	-2	-130	-1/-10	-145	-2/-40	176	28	SOT223
FZT948	-20	-6	-20	3	100	-1	60	-10	-130	-0.5/-10	-450	-6/-250	80	-	SOT223
ZXTP19020DZ	-20	-6	-15	2.4	300	-0.1	65	-6	-130	-1/-10	-145	-2/-40	176	28	SOT89
ZXTP25020DG	-20	-6	-10	3	300	-0.01	200	-1	-65	-1/-100	-245	-2/-40	290	42	SOT223
ZXTP19020DFF	-20	-5.5	-15	1.5	300	-0.1	85	-5.5	-125	-1/-10	-140	-2/-40	176	26	SOT23F
ZXTP19020CFF	-20	-5	-10	1.5	200	-0.1	110	-5	-70	-1/-20	-120	-2/-40	200	21	SOT23F

PNP UP TO 25V (CONTINUED)



Part Number	V _{CEO} (V)	I _C (A)	I _{CM} (A)	P _D (W)	h _{FE}				V _{CE(sat)}				f _T (MHz)	R _{CE(sat)} (mΩ)	Package
					Min	@ I _C (A)	Min	@ I _C (A)	Max (mV)	@ I _C / I _B (A/mA)	Max (mV)	@ I _C / I _B (A/mA)			
ZXTP25020DZ	-20	-5	-10	2.4	300	-0.01	45	-5	-65	-1/-100	-245	-2/-40	290	39	SOT89
2DBI386Q	-20	-5	-10	1	120	-0.5	-	-	-1000	-4/-100	-	-	100	-	SOT89
2DBI386R	-20	-5	-10	1	180	-0.5	-	-	-1000	-4/-100	-	-	100	-	SOT89
ZXTP25020CFF	-20	-4.5	-10	1.5	200	-0.01	85	-4	-110	-1/-20	-185	-2/-40	285	41	SOT23F
ZTX948	-20	-4.5	-20	1.2	100	-1	60	-10	-100	-0.5/-10	-310	-5/-300	80	-	E-Line
ZXTI3P20DE6	-20	-4	-10	1.1	300	-1	200	-4	-15	-0.1/-10	-130	-1/-10	90	47	SOT26
ZXTP25020DFH	-20	-4	-10	1.25	300	-0.01	200	-1	-60	-1/-100	-240	-2/-40	290	39	SOT23
ZXTP25020CFH	-20	-4	-10	1.25	200	-0.01	85	-4	-55	-1/-100	-170	-2/-40	285	34	SOT23
ZXTP25020BFH	-20	-4	-10	1.25	100	-0.01	80	-1	-60	-1/-100	-190	-2/-40	250	32	SOT23
ZX5T2E6	-20	-3.5	-10	1.1	300	-1	150	-3.5	-140	-1/-10	-120	-3.5/-350	110	31	SOT26
ZXTP7I8MA	-20	-3.5	-6	1.5	300	-0.1	150	-2	-220	-1/-20	-250	-1.5/-50	150	64	DFN2020B-3
2DBI424R	-20	-3	-5	1	180	-0.1	-	-	-500	-2/-100	-	-	220	-	SOT89
DSS5320T	-20	-3	-5	0.6	220	-0.1	100	-3	-70	-0.5/-50	-300	-3/-300	180	105	SOT23
ZXTI0P20DE6	-20	-2.5	-6	1.1	300	-0.1	150	-2	-220	-1/-20	-250	-1.5/-50	150	96	SOT26
ZTX7I8	-20	-2.5	-6	1	300	-0.1	150	-2	-40	-0.1/-10	-220	-1.5/-50	150	96	E-Line
FCX7I8	-20	-2.5	-6	1	300	-0.1	150	-2	-40	-0.1/-10	-220	-1.5/-50	150	96	SOT89
DSS20200L	-20	-2	-4	1.2	250	-0.5	150	-2	-120	-1/-10	-180	-2/-200	100	-	SOT23
DSS5220V	-20	-2	-4	0.6	220	-0.1	155	-1	-80	-0.1/-1	-220	-1/-50	150	-	SOT563
FMMT7I8	-20	-1.5	-6	0.625	300	-0.1	150	-2	-40	-0.1/-10	-220	-1.5/-50	150	97	SOT23
ZXTP25020DFL	-20	-1.5	-6	0.35	300	-0.01	160	-1.5	-225	-1/-10	-195	-1.5/-30	290	54	SOT23
ZXTP26020DMF	-20	-1.25	-4	1	300	-0.1	140	-1.5	-80	-0.1/-1	-155	-1/-50	200	125	DFN1411-3
FMMTL7I8	-20	-1	-2	0.5	300	-0.1	120	-1	-50	-0.1/-10	-180	-0.5/-20	265	210	SOT23
ZUMT7I8	-20	-1	-3	0.385	300	-0.1	100	-1	-45	-0.1/-10	-175	-0.5/-20	210	200	SOT323
FZTI149A	-25	-4	-10	2.5	250	-0.5	115	-5	-170	-0.5/-3	-260	-2/-30	135	-	SOT223
ZTXI149A	-25	-3	-10	1	250	-0.5	115	-5	-170	-0.5/-3	-260	-2/-30	135	-	E-Line
FCXI149A	-25	-3	-10	2	250	-0.5	115	-5	-170	-0.5/-3	-240	-1/-7	135	67	SOT89
FZT789A	-25	-3	-6	2	250	-1	200	-2	-250	-1/-10	-450	-2/-20	100	93	SOT223
FZT749	-25	-3	-8	2	100	-1	75	-2	-300	-1/-100	-600	-3/-300	100	-	SOT223
FCX789A	-25	-3	-8	1	230	-1	75	-6	-190	-1/-10	-320	-3/-100	100	-	SOT89
ZXTP749F	-25	-3	-6	0.72	200	-0.1	100	-2	-150	-1/-100	-350	-3/-300	-	87	SOT23
ZTX789A	-25	-3	-8	1	250	-1	100	-6	-250	-1/-10	-450	-2/-20	100	-	E-Line
ZTX749	-25	-2	-6	1	100	-1	75	-2	-300	-1/-100	-500	-2/-200	100	-	E-Line
2DBI119S	-25	-1	-2	1	140	-0.05	40	-1	-700	-0.5/50	-	-	200	-	SOT89

SOT23F ENABLES GREATER POWER DENSITY



THE DIODES ADVANTAGE

- Low Profile**
 Flat leads ensure a profile of 1mm max is achievable.
- Higher Dissipation**
 The rating of up to 1.5W ensures cooler operation than a standard SOT23 and also provides a potential space saving over SOT89 devices.
- Standard SOT23 Footprint**
 Able to replace existing designs and layouts with improved thermal performance.
- Leaded Package**
 Enabling visual optical inspection of the solder joint and avoids the need for X-ray inspection.

DUAL PNP TRANSISTORS UP TO 25V



Part Number	V _{CEO} (V)	I _C (A)	I _{CM} (A)	P _D (W)	h _{FE}				V _{CE(sat)}				f _T (MHz)	R _{CE(sat)} (mΩ)	Package
					Min	@ I _C (A)	Min	@ I _C (A)	Max (mV)	@ I _C / I _B (A/mA)	Max (mV)	@ I _C / I _B (A/mA)			
ZXTD717MC	-12	-4	-12	1.5	300	-0.1	180	-2.5	-140	-1/-10	-300	-3/-50	110	60	DFN3020B-8
ZXTI2P12DX	-12	-3	-15	1.25	300	-1	200	-3	-85	-1/-20	-270	-3/-30	85	47	MSOP-8
ZXTD718MC	-20	-3.5	-6	1.5	300	-0.1	150	-2	-220	-1/-20	-250	-1.5/-50	180	64	DFN3020B-8
ZDT749	-25	-2	-6	2.75	100	-1	15	-6	-300	-1/-100	-500	-2/-200	160	-	SM8

NPN 30V TO 50V



Part Number	V _{CEO} (V)	I _C (A)	I _{CM} (A)	P _D (W)	h _{FE}				V _{CE(sat)}				f _T (MHz)	R _{CE(sat)} (mΩ)	Package
					Min	@ I _C (A)	Min	@ I _C (A)	Max (mV)	@ I _C / I _B (A/mA)	Max (mV)	@ I _C / I _B (A/mA)			
ZXT849K	30	7	20	4.2	100	1	40	20	80	1/20	280	7/350	100	33	TO252 (DPAK)
ZXTN2007G	30	7	20	3	100	1	100	7	65	1/20	220	6.5/300	140	28	SOT223
ZXTN2007Z	30	6	20	2.1	100	1	100	7	60	1/20	115	2/20	140	23	SOT89
ZTX849	30	5	20	1.2	100	1	100	5	100	1/20	220	5/200	100	-	E-Line
2DD2679	30	2	4	0.9	270	0.2	-	-	370	1.5/75	-	-	240	-	SOT89
FZT489	30	1	4	2	100	1	60	2	300	1/100	600	2/200	150	-	SOT223
ZTX449	30	1	2	1	100	0.5	40	2	500	1/100	1000	2/200	150	-	E-Line
FMMT489	30	1	4	0.5	100	1	20	4	300	1/100	600	2/100	150	175	SOT23
DSS30101L	30	1	2	0.6	300	0.05	200	1	75	0.1/1	200	1/100	100	200	SOT23
FMMT449	30	1	2	0.5	100	0.5	40	2	500	1/100	1000	2/200	150	250	SOT23
2DD2656	30	1	2	0.3	270	0.1	-	-	350	0.5/25	-	-	270	-	SOT23
2DD1766P	32	2	2.5	1	82	0.5	-	-	800	2/200	-	-	220	-	SOT89
2DD1766Q	32	2	2.5	1	120	0.5	-	-	800	2/200	-	-	220	-	SOT89
2DD1766R	32	2	2.5	1	180	0.5	-	-	800	2/200	-	-	220	-	SOT89
2DD1664P	32	1	2	1	82	0.1	-	-	400	0.5/50	-	-	280	-	SOT89
2DD1664Q	32	1	2	1	120	0.1	-	-	400	0.5/50	-	-	280	-	SOT89
2DD1664R	32	1	2	1	180	0.1	-	-	400	0.5/50	-	-	280	-	SOT89
FZT1051A	40	5	10	2.5	270	1	130	5	120	1/10	340	5/100	155	50	SOT223
ZXTN25040DZ	40	5	10	1.8	300	1	20	5	215	1/10	260	5/500	190	36	SOT89
DSS4540X	40	4	10	2	300	1	100	5	120	1/10	190	4/200	70	37	SOT89
ZTX1051A	40	4	10	1	300	1	45	10	110	1/10	210	4/100	155	-	E-Line
ZXTN25040DFH	40	4	10	1.25	300	1	30	4	210	1/10	190	4/400	190	35	SOT23
DJT4031N	40	3	5	1.2	200	1	100	3	150	1/10	300	3/300	105	100	SOT223
FCX1051A	40	3	10	1	270	1	40	10	120	1/10	340	5/100	155	57	SOT89
DSS4240T	40	2	3	0.6	300	0.5	150	2	100	0.5/5	180	1/50	100	60	SOT23
DSS4240Y	40	2	5	0.6	350	0.1	150	2	70	0.1/1	320	2/200	100	200	SOT363
DSS4240V	40	2	3	0.6	300	0.5	75	2	100	0.5/5	190	1/100	150	190	SOT563
ZXTN25040DFL	40	1.5	6	0.35	300	1	25	4	80	0.5/10	185	1.5/30	190	59	SOT23
FZT491A	40	1	2	2	300	0.5	35	2	300	0.5/50	500	1/100	150	-	SOT223
FCX491A	40	1	2	1	300	0.5	35	2	300	0.5/50	500	1/100	150	-	SOT89
FMMT491A	40	1	2	0.5	300	0.5	200	1	300	0.5/50	500	1/100	150	195	SOT23
ZXTN2040F	40	1	2	0.35	300	0.5	200	1	200	0.1/1	300	0.5/50	150	-	SOT23
DSS4140U	40	1	2	0.4	300	0.5	200	1	250	0.5/50	500	1/100	150	500	SOT323
DSS4140V	40	1	3	0.6	300	0.5	200	1	110	0.5/50	440	2/200	150	190	SOT563
DSS2540M	40	0.5	1	0.25	200	0.01	150	0.1	50	0.01/0.5	200	0.2/10	250	500	DFN1006-3

NPN 30V TO 50V (CONTINUED)



Part Number	V _{CEO} (V)	I _C (A)	I _{CM} (A)	P _D (W)	h _{FE}				V _{CE(sat)}				f _T (MHz)	R _{CE(sat)} (mΩ)	Package
					Min	@ I _C (A)	Min	@ I _C (A)	Max (mV)	@ I _C / I _B (A/mA)	Max (mV)	@ I _C / I _B (A/mA)			
ZXTN07045EFF	45	4	6	1.5	400	1	70	4	230	1/5	270	2/20	150	50	SOT23F
ZXT690BK	45	3	6	3.9	400	1	60	3	360	1/5	320	2/40	150	77	TO252 (DPAK)
DXT690BP5	45	3	6	3.2	400	1	150	2	360	1/5	320	2/40	150	77	PowerDI [®] 5
FZT690B	45	3	6	2	400	1	150	2	100	0.1/0.5	500	1/5	150	125	SOT223
FCX690B	45	2	6	2	400	1	150	2	80	0.1/0.5	300	1/5	150	-	SOT8
ZTX690B	45	2	6	1	400	1	150	2	100	0.1/0.5	500	1/5	150	-	E-Line
ZTX450	45	1	2	1	100	0.15	15	1	350	0.15/15	-	-	150	-	E-Line
ZXTN2031F	50	5	12	1.2	200	0.5	80	5	40	1/100	110	2/40	125	24	SOT23
ZXTI3N50DE6	50	4	10	1.1	300	1	100	4	100	1/10	200	3/30	115	36	SOT26
ZXTN25050DFH	50	4	10	1.25	240	1	20	4	60	1/100	250	2/40	200	40	SOT23
ZXTN619MA	50	4	6	1.5	300	0.2	100	2	100	1/5	220	2/50	100	68	DFN2020B-3
ZXTION50DE6	50	3	6	1.1	300	0.2	100	2	200	1/10	300	3/100	100	75	SOT26
FCX619	50	3	6	1.5	300	0.2	100	2	220	1/10	260	2/50	100	87	SOT89
2DC4672	50	3	6	0.9	82	0.5	45	1.5	350	1/50	-	-	180	-	SOT89
FMMT619	50	2	6	0.625	300	0.2	100	2	200	1/10	220	2/50	100	75	SOT23
FMMTL619	50	1.25	2	0.5	300	0.2	100	1	45	0.1/10	180	0.5/25	180	160	SOT23
ZUMT619	50	1	2	0.385	300	0.1	75	1	35	0.1/10	200	0.5/10	215	160	SOT323
2DC2412R	50	0.15	-	0.3	180	0.01	-	-	400	0.05/5	-	-	180	-	SOT23
2DC4617Q	50	0.15	-	0.15	120	0.001	-	-	400	0.05/5	-	-	180	-	SOT523
2DC4617QLP	50	0.15	0.2	0.25	120	0.001	-	-	200	0.05/5	-	-	100	-	DFN1006-3
2DC4617R	50	0.15	-	0.15	180	0.001	-	-	400	0.05/5	-	-	180	-	SOT523
2DC4617S	50	0.15	-	0.15	270	0.001	-	-	400	0.05/5	-	-	180	-	SOT523

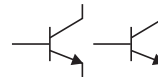
DFN1006: TINY PACKAGE TO REPLACE SOT23



THE DIODES ADVANTAGE

- **Higher Power Density**
DFN1006 is thermally efficient with 29% lower thermal resistance than an equivalent SOT23 whilst occupying 13 times less footprint.
- **0.6mm² Footprint and 0.4mm Off-Board Height**
Smaller form factor whilst delivering the same or better electrical performance of larger packages.

DUAL NPN TRANSISTORS 30V TO 50V



Part Number	V _{CEO} (V)	I _C (A)	I _{CM} (A)	P _D (W)	h _{FE}				V _{CE(sat)}				f _T (MHz)	R _{CE(sat)} (mΩ)	Package
					Min	@ I _C (A)	Min	@ I _C (A)	Max (mV)	@ I _C / I _B (A/mA)	Max (mV)	@ I _C / I _B (A/mA)			
ZXTN619MA	50	4	6	1.5	300	0.2	100	2	100	1/5	220	2/50	100	68	DFN2020B-3
ZXTI2N50DX	50	3	10	1.25	300	1	150	3	120	1/10	250	3/50	132	45	MSOP-8
ZXTD2090E6	50	1	2	1.1	300	0.1	75	1	80	0.25/10	270	1/50	215	160	SOT26
ZXTD09N50DE6	50	1	2	1.1	300	0.1	75	1	80	0.25/10	270	1/50	215	160	SOT26

NPN & PNP 30V TO 50V



Part Number	V _{CEO} (V)	I _C (A)	I _{CM} (A)	P _D (W)	h _{FE}				V _{CE(sat)}				f _T (MHz)	R _{CE(sat)} (mΩ)	Package
					Min	@ I _C (A)	Min	@ I _C (A)	Max (mV)	@ I _C / I _B (A/mA)	Max (mV)	@ I _C / I _B (A/mA)			
ZXTC2045E6	30 -30	1.5 -1.5	5 -5	1.1	180 100	0.1 -0.1	- -	- -	375 -375	0.75/15 -0.75/-15	- -	- -	- -	- -	SOT26
ZXTC2063E6	40 -40	3.5 -3	9 -9	1.1	280 200	1 -1	40 20	3.5 -3	110 -290	1/20 -1/-20	220 -260	2/40 -3/-300	190 270	38 58	SOT26
ZXTC4591AMC	40 -40	2 -1.5	3 -3	1.5	300 250	0.5 -0.5	35 30	2 -2	300 -350	0.5/50 -0.5/-20	500 -500	1/100 -1/-100	150 150	195 350	DFN3020B-8
ZDT6790	45 -40	2 -2	6 -6	2.75	400 250	1 -0.5	150 150	2 -2	100 -250	0.1/0.5 -0.5/-5	500 -450	1/5 -1/-10	150 100	- -	SM8
ZXTC6719MC	50 -40	4 -3	6 -4	1.5	300 300	0.2 -0.1	100 60	2 -1.5	100 -220	1/5 -1/-50	220 -300	2/50 -1.5/-100	100 150	68 104	DFN3020B-8

PNP 30V TO 50V



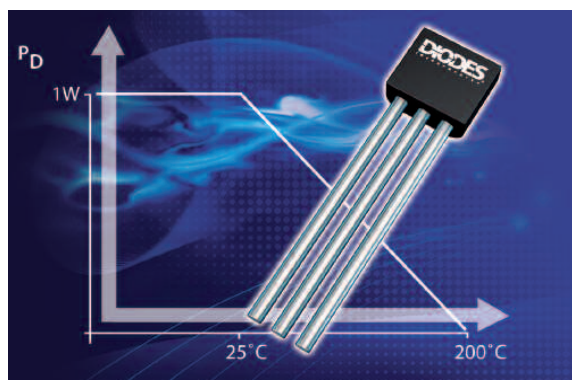
Part Number	V _{CEO} (V)	I _C (A)	I _{CM} (A)	P _D (W)	h _{FE}				V _{CE(sat)}				f _T (MHz)	R _{CE(sat)} (mΩ)	Package
					Min	@ I _C (A)	Min	@ I _C (A)	Max (mV)	@ I _C / I _B (A/mA)	Max (mV)	@ I _C / I _B (A/mA)			
ZXTP2008G	-30	-5.5	-20	3	100	-1	70	-5	-60	-1/-100	-210	-5.5/-500	110	31	SOT223
ZXTP2008Z	-30	-5.5	-20	2.1	100	-1	70	-5	-80	-1/-20	-80	-2/-200	110	24	SOT89
ZTX949	-30	-4.5	-20	1.2	100	-1	75	-5	-100	-1/-20	-320	-5/-300	100	-	E-Line
DMJT9435	-30	-3	-5	1.2	110	-1.2	90	-3	-275	-1.2/-20	-550	-3/-300	160	183	SOT223
2DB1714	-30	-2	-4	0.9	270	-0.2	-	-	-370	-1.5/-75	-	-	200	-	SOT89
FZT589	-30	-1	-2	2	100	-0.5	40	-2	-350	-1/-100	-650	-2/-200	100	-	SOT223
FCX589	-30	-1	-2	1	100	-0.5	80	-1	-350	-1/-100	-650	-2/-200	100	-	SOT89
ZTX549	-30	-1	-2	1	80	-1	40	-2	-500	-1/-100	-750	-2/-200	100	-	E-Line
FMMT589	-30	-1	-2	0.5	100	-0.5	80	-1	-250	-0.5/-50	-350	-1/-100	100	250	SOT23
2DB1694	-30	-1	-2	0.3	270	-0.1	-	-	380	-0.5/-25	-	-	300	-	SOT323
2DB1182Q	-32	-2	-3	10	120	-0.5	-	-	-800	-2/-200	-	-	120	-	TO252 (DPAK)
2DB1188P	-32	-2	-3	1	82	-0.5	-	-	-800	-2/-200	-	-	120	-	SOT89
2DB1188Q	-32	-2	-3	1	120	-0.5	-	-	-800	-2/-200	-	-	120	-	SOT89
2DB1188R	-32	-2	-3	1	180	-0.5	-	-	-800	-2/-200	-	-	120	-	SOT89
2DB1132P	-32	-1	-2	1	82	-0.1	-	-	-500	-0.5/-50	-	-	190	-	SOT89
2DB1132Q	-32	-1	-2	1	120	-0.1	-	-	-500	-0.5/-50	-	-	190	-	SOT89
2DB1132R	-32	-1	-2	1	180	-0.1	-	-	-500	-0.5/-50	-	-	190	-	SOT89
ZXTP2009Z	-40	-5.5	-15	2.1	200	-0.5	110	-5.5	-165	-1/-10	-175	-3.5/-175	152	29	SOT89
ZX5T3Z	-40	-5.5	-15	2.1	200	-0.5	170	-2	-70	-1/50	-175	-2/-40	152	29	SOT89
DSS5540X	-40	-4	-10	2	200	-1	50	-5	-120	-0.5/-5	-340	-4/-200	60	75	SOT89
ZXT790AK	-40	-3	-6	3.9	250	-0.5	80	-3	-170	-0.5/-5	-450	-2/-50	100	83	TO252 (DPAK)
DXT790AP5	-40	-3	-6	3.2	250	-0.5	80	-3	-350	0.1	-450	-2/-50	100	125	PowerDI [®] 5
FZT1151A	-40	-3	-5	2.5	250	-0.5	100	-3	-220	-1/-20	-300	-3/-250	145	-	SOT223
DJT4030P	-40	-3	-5	1.2	200	-1	100	-3	-150	-0.5/-5	-500	-3/-300	150	167	SOT223
FZT790A	-40	-3	-6	2	250	-0.5	150	-2	-250	-0.5/-5	-450	-1/-10	100	125	SOT223
FCX1151A	-40	-3	-5	2	250	-0.5	100	-3	-220	-1/-20	-300	-3/-250	145	66	SOT89
ZXT13P40DE6	-40	-3	-10	1.1	300	-1	100	-3	-200	-1/-20	-190	-2/-100	115	58	SOT26
ZXTP25040DZ	-40	-3	-9	2.4	200	-1	20	-3.5	-265	-1/-20	-350	-3.5/-350	270	55	SOT89
ZXTP07040DFF	-40	-3	-6	1.5	250	-0.5	80	-3	-180	-0.5/-5	-540	-2/-40	100	67	SOT23F
ZXTP25040DFH	-40	-3	-9	1.25	200	-1	30	-3	-260	-1/-20	-220	-3/-300	270	55	SOT23
ZXTP720MA	-40	-3	-4	1.5	300	-0.1	60	-1.5	-220	-1/-50	-300	-1.5/-100	150	104	DFN2020B-3

PNP 30V TO 50V (CONTINUED)



Part Number	V _{CEO} (V)	I _C (A)	I _{CM} (A)	P _D (W)	h _{FE}				V _{CE(sat)}				f _T (MHz)	R _{CE(sat)} (mΩ)	Package
					Min	@ I _C (A)	Min	@ I _C (A)	Max (mV)	@ I _C / I _B (A/mA)	Max (mV)	@ I _C / I _B (A/mA)			
FCX790A	-40	-2	-6	2	250	-0.5	150	-2	-250	-0.5/-5	-350	-1/-10	100	-	SOT89
ZXTI0P40DE6	-40	-2	-4	1.1	300	-0.1	60	-1.5	-40	-0.1/-10	-300	-1.5/-50	150	105	SOT26
ZTX790A	-40	-2	-6	1	250	-0.5	150	-2	-250	-0.5/-5	-450	-1/-10	100	-	E-Line
DSS5240T	-40	-2	-3	0.6	260	-0.5	100	-2	-110	-0.5/-50	-225	-1/-50	100	90	SOT23
DSS5240Y	-40	-2	-3	0.625	260	-0.5	100	-2	-110	-0.5/-50	-350	-2/-200	100	220	SOT363
DSS5240V	-40	-1.8	-3	0.6	300	-0.1	50	-2	-145	-0.5/-50	-250	-1/-100	150	250	SOT563
FMMT720	-40	-1.5	-4	0.625	300	-0.1	60	-1.5	-40	-0.1/-10	-220	-1/-50	150	163	SOT23
ZXTP25040DFL	-40	-1.5	-5	0.35	300	-0.1	120	-1.5	-95	-0.5/-20	-190	-1.5/-75	270	82	SOT23
FZT591A	-40	-1	-2	2	250	-0.5	160	-1	-200	-0.1/-1	-500	-1/-100	150	350	SOT223
FCX591A	-40	-1	-2	1	250	-0.5	160	-1	-200	-0.1/-1	-500	-1/-100	150	-	SOT89
FMMT591A	-40	-1	-2	0.5	250	-0.5	160	-1	-200	-0.1/-1	-500	-1/-100	150	350	SOT23
ZXTP2041F	-40	-1	-2	0.35	250	-0.5	160	-1	-200	-0.1/-1	-500	-1/-100	150	350	SOT23
DSS5140U	-40	-1	-2	0.4	300	-0.1	160	-1	-200	-0.1/-1	-500	-1/-100	150	-	SOT323
DSS5140V	-40	-1	-2	0.6	300	-0.1	160	-1	-140	-0.1/-1	-310	-1/-100	150	-	SOT563
ZUMT720	-40	-0.75	-1	0.385	300	-0.1	40	-0.75	-65	-0.1/-10	-200	-0.5/-50	220	240	SOT323
DSS3540M	-40	-0.5	-1	0.25	200	-0.01	150	-0.1	-50	-0.01/-0.5	-200	-0.2/-10	100	700	DFN1006-3
ZTX550	-45	-1	-2	1	100	-0.15	15	-1	-350	-0.15/-15	-	-	150	-	E-Line
ZXTP2025F	-50	-5	-10	1.2	200	-0.5	70	-5	-60	-1/-100	-230	-2/-40	190	30	SOT23
2DA1797	-50	-3	-6	0.9	82	-0.5	-	-	-350	-1/-50	-	-	160	-	SOT89
2DB1184Q	-50	-3	-4.5	1.2	120	-0.5	-	-	1000	-2/-200	-	-	110	-	TO252 (DPAK)
DP1S350E	-50	-3	-5	1	200	-1	100	-2	-180	-1/-50	-300	-2/-200	100	67	SOT223
DP1S350Y	-50	-3	-5	1	200	-0.5	130	-2	-180	-1/-50	-270	-2/-200	100	67	SOT89
2DA1213O	-50	-2	-	1	70	-0.5	20	-2	-500	-1/-50	-	-	160	-	SOT89
2DA1213Y	-50	-2	-	1	120	-0.5	20	-2	-500	-1/-50	-	-	160	-	SOT89
2DA1774Q	-50	-0.15	-	0.15	120	-0.001	-	-	-500	-0.05/-5	-	-	140	-	SOT523
2DA1774R	-50	-0.15	-	0.15	180	-0.001	-	-	-500	-0.05/-5	-	-	140	-	SOT523
2DA1774S	-50	-0.15	-	0.15	270	-0.001	-	-	-500	-0.05/-5	-	-	140	-	SOT523
2DA1774QLP	-50	-0.1	-0.2	0.25	120	-0.001	-	-	-200	-0.05/-5	-	-	100	-	DFN1006-3

E-LINE: HIGH TEMPERATURE SIP



THE DIODES ADVANTAGE

- **Qualified to 200°C Junction Temperature**
Suitable for applications operating at high ambient temperatures.
- **1 Watt Capable**
High dissipation capability from small body size.
- **Small Body Size**
E-line alternative to TO92 where space is at a premium.

NPN 55V TO 100V



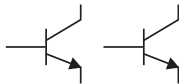
Part Number	V _{CEO} (V)	I _C (A)	I _{CM} (A)	P _D (W)	h _{FE}				V _{CE(sat)}				f _T (MHz)	R _{CE(sat)} (mΩ)	Package
					Min	@ I _C (A)	Min	@ I _C (A)	Max (mV)	@ I _C / I _B (A/mA)	Max (mV)	@ I _C / I _B (A/mA)			
ZXTN19055DZ	55	6	10	2.1	250	1	30	6	70	1/50	350	2/20	140	28	SOT89
ZXTN19060CG	60	7	12	3	200	0.1	25	7	155	1/10	300	7/700	130	30	SOT223
DXT2010P5	60	6	20	3.2	100	2	55	5	70	1/50	135	2/50	130	35	PowerDI®5
ZXTN2010G	60	6	20	3	100	2	55	5	70	1/50	135	2/50	130	35	SOT223
DSS6060IMZ4	60	6	12	1.2	120	1	50	6	60	1/100	220	3/60	100	50	SOT223
ZXTN19060CFF	60	5.5	12	1.5	200	0.1	30	60	150	1/10	175	5/550	130	26	SOT23F
ZXTN2010Z	60	5	20	2.1	100	2	55	5	65	1/50	125	2/50	130	30	SOT89
ZXTN2018F	60	5	12	1.2	100	2	40	5	55	1/50	170	5/250	130	25	SOT23
ZXTN25060BZ	60	5	10	1.8	90	1	45	2	90	1/50	230	4/400	185	48	SOT89
ZXTN2010A	60	4.5	15	1	100	2	55	5	65	1/50	130	2/50	130	34	E-Line
ZXTN25060BFH	60	3.5	10	1.25	90	1	25	3.5	95	0.5/10	65	1/100	185	43	SOT23
FZT651	60	3	6	2	100	0.5	40	2	300	1/100	600	3/300	175	-	SOT223
DXT651	60	3	6	1	100	0.5	40	2	300	1/100	600	3/300	200	-	SOT89
ZTX651	60	2	6	1	100	0.5	40	2	300	1/100	500	2/200	175	-	E-Line
FZT493A	60	1	2	2	300	0.25	100	0.5	250	0.5/50	500	1/100	150	-	SOT223
ZXTN4000Z	60	1	3	1.5	60	0.085	100	0.15	-	-	-	-	-	-	SOT89
FZT491	60	1	2	2	100	0.5	30	2	250	0.5/50	500	1/100	150	-	SOT223
FCX493A	60	1	2	1	300	0.25	100	0.5	250	0.5/50	500	1/100	150	-	SOT89
FCX491	60	1	2	1	100	0.5	30	2	250	0.5/50	500	1/100	150	-	SOT89
ZTX451	60	1	2	1	50	0.15	10	1	350	0.15/15	-	-	150	-	E-Line
FMMT491	60	1	2	0.5	100	0.5	80	1	150	0.5/50	250	1/100	150	160	SOT23
DSS4160T	60	1	2	0.7	250	0.01	100	1	115	0.1/1	180	1/100	150	280	SOT23
DNLS160	60	1	2	0.3	200	0.5	100	1	140	0.5/50	250	1/100	150	140	SOT23
ZXTN2038F	60	1	2	0.35	100	0.5	80	1	200	0.1/2	250	0.5/50	150	-	SOT23
FMMT493A	60	1	2	0.5	500	0.15	100	0.5	250	0.5/50	500	1/100	150	-	SOT23
FMMT451	60	1	2	0.5	50	0.15	10	1	350	0.15/15	-	-	150	400	SOT23
DSS4160U	60	1	2	0.4	200	0.5	100	1	150	0.5/50	280	1/100	150	280	SOT323
ZUMT491	60	1	2	0.5	100	0.5	-	-	250	0.5/50	500	1/100	-	-	SOT323
DSS4160V	60	1	2	0.6	200	0.5	100	1	140	0.5/50	250	1/100	150	250	SOT563
FZT692B	70	2	5	2	400	0.5	150	1	500	1/10	500	2/100	150	-	SOT223
DXTN26070CY	70	2	4	1.5	150	0.01	200	0.1	300	1/100	-	-	150	-	SOT89
ZXTN26070CV	70	2	5	0.6	190	0.01	75	2	150	0.5/10	165	1/100	200	-	SOT563
ZTX692B	70	1	2	1	400	0.5	150	1	150	0.1/0.5	500	1/10	150	-	E-Line
ZXT1053AK	75	5	10	3.4	300	1	50	5	160	1/10	460	5/200	140	70	TO252 (DPAK)
FZT1053A	75	4.5	10	2.5	300	1	40	4.5	200	1/10	440	4.5/200	140	78	SOT223
FCX1053A	75	3	10	2	300	0.5	40	4.5	200	1/10	210	2/100	140	78	SOT89
ZTX1053A	75	3	10	1	300	1	100	3	150	1/10	250	3/100	140	-	E-Line
FMMT620	80	1.5	5	0.625	300	0.2	60	1.5	60	0.5/50	185	1/20	100	90	SOT23
ZXTN620MA	80	3.5	5	1.5	300	0.2	60	1.5	60	0.5/50	200	1.5/50	100	68	DFN2020B-3
DXT2011P5	100	6	10	3.2	100	2	30	5	65	1/100	220	5/500	130	36	PowerDI®5
ZXTN2011G	100	6	10	3	100	2	30	5	65	1/100	220	5/500	130	36	SOT223
ZXTN19100CG	100	5.5	10	3	200	0.1	130	1	140	1/20	430	5.5/550	150	43	SOT223
ZXTN19100CZ	100	5.25	10	2.4	200	0.1	130	1	65	1/100	140	1/20	150	44	SOT89
ZXTN2011Z	100	4.5	10	2.1	100	2	30	5	60	1/100	115	2/100	130	31	SOT89
ZXTN19100CFF	100	4.5	6	1.5	200	0.1	130	1	135	1/20	235	4.5/450	150	38	SOT23F
ZTX853	100	4	10	1.2	100	2	50	4	150	2/100	200	4/400	130	-	E-Line
ZXTN2020F	100	4	12	1.2	100	1	35	4	50	1/100	150	4/400	130	30	SOT23

NPN 55V TO 100V (CONTINUED)



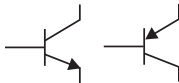
Part Number	V _{CEO} (V)	I _C (A)	I _{CM} (A)	P _D (W)	h _{FE}				V _{CE(sat)}				f _T (MHz)	R _{CE(sat)} (mΩ)	Package
					Min	@ I _C (A)	Min	@ I _C (A)	Max (mV)	@ I _C / I _B (A/mA)	Max (mV)	@ I _C / I _B (A/mA)			
MJD31C	100	3	5	1.56	25	1	10	3	1200	3/375	-	-	3	-	TO252 (DPAK)
ZXTN25100DG	100	3	3.5	3	300	0.01	40	1	100	1/100	500	3/600	175	85	SOT223
ZXTN25100BFH	100	3	9	1.25	100	0.01	50	1	135	0.5/10	250	3/200	160	67	SOT23
ZXTN25100DZ	100	2.5	3.5	2.4	300	0.01	120	0.5	170	0.5/10	245	2.5/250	175	80	SOT89
ZXTN25100DFH	100	2.5	3	1.25	300	0.01	120	0.5	170	0.5/10	95	1/100	175	86	SOT23
DXTN07100BP5	100	2	6	2	100	0.5	55	1	300	1/100	500	2/200	140	-	PowerDI [®] 5
FZT653	100	2	6	2	100	0.5	25	2	300	1/100	500	2/200	140	-	SOT223
ZTX653	100	2	6	1	100	0.5	25	2	300	1/100	500	2/200	140	-	E-Line
ZXTN4002Z	100	1	3	1.5	60	0.085	100	0.15	-	-	-	-	-	-	SOT89
FZT493	100	1	2	2	100	0.25	30	1	300	0.5/50	600	1/100	150	-	SOT223
FCX493	100	1	2	1	100	0.25	20	1	300	0.5/50	600	1/100	150	-	SOT89
ZTX453	100	1	2	1	40	0.15	10	1	700	0.15/15	-	-	150	-	E-Line
FMMT493	100	1	2	0.5	100	0.25	60	0.5	300	0.5/50	600	1/100	150	-	SOT23
DSS8110Y	100	1	3	0.625	150	0.25	80	1	40	0.1/10	200	1/100	100	200	SOT363

DUAL NPN 55V TO 100V



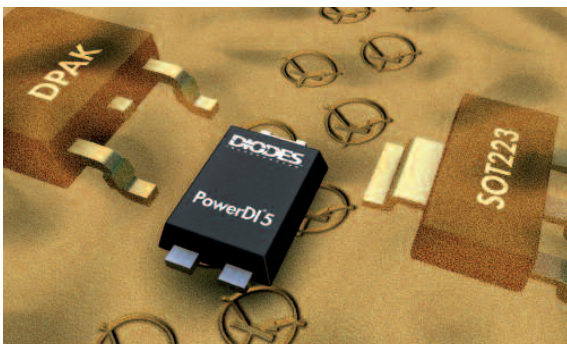
Part Number	V _{CEO} (V)	I _C (A)	I _{CM} (A)	P _D (W)	h _{FE}				V _{CE(sat)}				f _T (MHz)	R _{CE(sat)} (mΩ)	Package
					Min	@ I _C (A)	Min	@ I _C (A)	Max (mV)	@ I _C / I _B (A/mA)	Max (mV)	@ I _C / I _B (A/mA)			
DSS4160DS	60	1	2	1.1	200	0.5	100	1	110	0.1/1	250	1/100	150	-	SOT26
DSS4160FDB	60	1	1.5	1	290	0.1	70	1	120	0.5/50	240	1/50	175	-	DFN2020-6

NPN & PNP 55V TO 100V



Part Number	V _{CEO} (V)	I _C (A)	I _{CM} (A)	P _D (W)	h _{FE}				V _{CE(sat)}				f _T (MHz)	R _{CE(sat)} (mΩ)	Package
					Min	@ I _C (A)	Min	@ I _C (A)	Max (mV)	@ I _C / I _B (A/mA)	Max (mV)	@ I _C / I _B (A/mA)			
ZDT6753	100 -100	2 -2	6 -6	2.75	100 100	0.5 -0.5	55 55	1 -1	300 -300	1/100 -1/-100	500 -500	2/200 -2/-200	140 100	- -	SM8
ZXTD4591E6	60 -60	1 -1	2 -2	1.1	100 100	0.5 -0.5	80 80	1 -1	250 -300	-0.5/50 -0.5/50	500 -600	1/100 -1/-100	150 150	210 355	SOT26
DSS45160FDB	60 -60	1 -1	1.5 -1.5	1 1	290 170	0.1 -0.1	70 70	1 -1	120 -180	0.5/50 -0.5/-50	240 -550	1/50 -1/-50	90 65	- -	DFN2020-6
ZXTC6720MC	80 -70	3.5 -2.5	5 -3	1.5	300 300	0.2 -0.1	60 40	1.5 -1.5	60 -200	0.5/50 -0.5/20	185 -260	1/20 -1.5/-200	100 150	68 117	DFN3020B-8

POWERDI5: SMALL OUTLINE POWER PACKAGE



THE DIODES ADVANTAGE

- **Reduced Footprint on PCB**
PowerDI5 provides a space saving alternative to SOT223 and TO252 (DPAK).
- **Low Profile Package**
The low profile of the PowerDI5, of just 1mm, excels in applications with height restrictions.
- **Excellent Thermal Performance**
A minimum copper power rating of 0.74W.

PNP 55V TO 100V



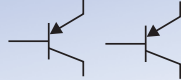
Part Number	V _{CEO} (V)	I _C (A)	I _{CM} (A)	P _D (W)	h _{FE}				V _{CE(sat)}				f _T (MHz)	R _{CE(sat)} (mΩ)	Package
					Min	@ I _C (A)	Min	@ I _C (A)	Max (mV)	@ I _C / I _B (A/mA)	Max (mV)	@ I _C / I _B (A/mA)			
DSS60600MZ4	-60	-6	-12	1.2	120	-1	70	-6	-70	-1/100	-250	-3/-60	100	60	SOT223
ZXT951K	-60	-6	-15	3.2	100	-2	15	-10	-90	-1/-100	-400	-6/-600	120	53	TO252 (DPAK)
DXT2012P5	-60	-5.5	-15	3.2	100	-2	10	-10	-70	-1/-100	-250	-5/-500	120	39	PowerDI®5
ZXTP2012G	-60	-5.5	-15	3	100	-2	10	-10	-70	-1/-100	-250	-5/-500	120	39	SOT223
ZXTP19060CG	-60	-5	-7	3	160	-1	20	-5	-205	-1/-20	-500	-5/-500	180	50	SOT223
ZXTP19060CZ	-60	-4.5	-7	2.4	200	-0.1	160	-1	-205	-1/-20	-165	-3/-300	180	50	SOT89
ZXTP19060CFF	-60	-4	-7	1.5	200	-0.1	160	-1	-75	-1/-100	-200	-1/-20	180	45	SOT23F
ZXTP2012Z	-60	-4.3	-15	2.1	100	-2	45	-5	-65	-1/-100	-110	-2/-200	120	32	SOT89
ZXTP2027F	-60	-4	-10	1.2	100	-2	80	-4	-60	-1/-100	-95	-2/-200	165	31	SOT23
ZXTP2012A	-60	-3.5	-15	1	100	-1	65	-4	-65	-1/-100	-115	-2/-200	120	38	E-Line
FZT751	-60	-3	-6	2	100	-0.5	40	-2	-300	-1/-100	-600	-3/-300	100	-	SOT223
DXT751	-60	-3	-6	1	100	-0.5	40	-2	-300	-1/-100	-600	-3/-300	100	-	SOT89
ZXTP25060BFH	-60	-3	-9	1.25	100	-0.01	30	-3	-135	-0.5/-10	-235	-3/-300	250	58	SOT23
ZTX751	-60	-2	-6	1	100	-0.5	40	-2	-300	-1/-100	-500	-2/-200	100	-	E-Line
FZT591	-60	-1	-2	2	100	-0.5	15	-2	-300	-0.5/-50	-600	-1/-100	150	-	SOT223
FCX591	-60	-1	-2	1	100	-0.5	80	-1	-300	-0.5/-50	-600	-1/-100	150	-	SOT89
ZTX551	-60	-1	-2	1	50	-0.15	10	-1	-350	-0.15/-15	-	-	150	-	E-Line
FMMT591	-60	-1	-2	0.5	100	-0.5	80	-1	-180	-0.5/-50	-350	-1/-100	150	295	SOT23
DPLS160	-60	-1	-2	0.3	150	-0.5	100	-1	-160	-0.1/-1	-330	-1/-100	150	-	SOT23
DSS5160T	-60	-1	-2	0.7	200	-0.01	100	-1	-175	-0.1/-1	-340	-1/-100	150	340	SOT23
DSS5160U	-60	-1	-2	0.4	150	-0.5	100	-1	-175	-0.1/-1	-340	-1/-100	150	340	SOT323
DSS5160V	-60	-1	-2	0.6	150	-0.5	100	-1	-160	-0.1/-1	-330	-1/-100	150	330	SOT563
DPBT8105	-60	-1	-2	0.6	100	-0.5	80	-1	-300	-0.5/-50	-600	-1/-100	150	-	SOT23
FMMT551	-60	-1	-2	0.5	50	-0.15	10	-1	-350	-0.15/-15	-	-	150	-	SOT23
ZUMT591	-60	-1	-2	0.5	100	-0.5	80	-1	-300	-0.5/-50	-600	-1/-100	150	-	SOT323
ZXTP2039F	-60	-1	-2	0.35	100	-0.5	80	-1	-200	-0.1/-2	-600	-1/-100	150	-	SOT23
ZXTP722MA	-70	-2.5	-3	1.5	300	-0.1	175	-1	-50	-0.1/-10	-220	-1/-100	150	117	DFN2020B-3
FZT792A	-70	-2	-5	2	250	-0.5	200	-1	-450	-0.5/-5	-500	-1/-25	100	-	SOT223
ZTX792A	-70	-2	-4	1	250	-0.5	200	-1	-450	-0.5/-5	-500	-1/-25	100	-	E-Line
FMMT722	-70	-1.5	-3	0.625	300	-0.1	175	-1	-200	-0.5/-20	-220	-1/-100	150	-	SOT23
ZXT953K	-100	-5	-10	3.2	100	-1	15	-5	-100	-1/-100	-390	-5/-500	125	67	TO252 (DPAK)
DXT2013P5	-100	-5	-10	3.2	100	-1	25	-3	-90	-1/-100	-150	-2/-200	125	60	PowerDI®5
ZXTP2013G	-100	-5	-10	3	100	-1	25	-3	-90	-1/-100	-150	-2/-200	125	60	SOT223
ZXTP2013Z	-100	-3.5	-10	2.1	100	-1	25	-3	-85	-1/-100	-135	-2/-200	125	57	SOT89
ZTX953	-100	-3.5	-10	1.2	100	-1	30	-4	-100	-1/-100	-170	-2/-200	125	-	E-Line
MJD32C	-100	-3	-5	1.56	25	-1	10	-3	-1200	-3/-375	-	-	3	-	TO252 (DPAK)
ZXTP2029F	-100	-3	-5	1.2	100	-1	40	-3	-80	-1/-100	-180	-3/-300	150	45	SOT23
ZXTP19100CG	-100	-2	-3	3	200	-0.1	20	-2	-125	-1/-100	-295	-2/-200	142	100	SOT223
ZXTP19100CZ	-100	-2	-3	2.4	200	-0.1	70	-1	-230	-1/-50	-295	-2/-200	142	100	SOT89
ZXTP19100CFF	-100	-2	-3	1.5	200	-0.1	70	-1	-130	-0.5/-20	-225	-1/-50	142	95	SOT23F
FZT753	-100	-2	-6	2	100	-0.5	55	-1	-300	-1/-100	-500	-2/-200	100	-	SOT223
ZTX753	-100	-2	-6	1	100	-0.5	55	-1	-300	-1/-100	-500	-2/-200	100	-	E-Line
ZXTP25100BFH	-100	-2	-5	1.25	100	-0.01	55	-1	-90	-0.5/-50	-130	-1/-100	200	108	SOT23
ZXTP25100CZ	-100	-1	-3	2.4	180	-0.1	110	-0.5	-210	-0.1/-1	-315	-0.5/-20	180	155	SOT89
ZXTP25100CFH	-100	-1	-3	1.25	180	-0.1	110	-0.5	-210	-0.1/-1	-310	-0.5/-20	180	150	SOT23
FMMT723	-100	-1	-2.5	0.625	300	-0.1	250	-0.5	-200	-0.5/-50	-330	-1/-150	150	-	SOT23

PNP 55V TO 100V (CONTINUED)



Part Number	V _{CEO} (V)	I _C (A)	I _{CM} (A)	P _D (W)	h _{FE}				V _{CE(sat)}				f _T (MHz)	R _{CE(sat)} (mΩ)	Package
					Min	@ I _C (A)	Min	@ I _C (A)	Max (mV)	@ I _C / I _B (A/mA)	Max (mV)	@ I _C / I _B (A/mA)			
FZT593	-100	-1	-2	2	100	-0.25	50	-1	-200	-0.25/-25	-300	-0.5/-50	50	-	SOT223
FCX593	-100	-1	-2	1	100	-0.25	50	-1	-200	-0.25/-25	-300	-0.5/-50	50	-	SOT89
ZTX553	-100	-1	-2	1	40	-0.15	10	-1	-250	-0.15/-15	-	-	150	-	E-Line
FMMT593	-100	-1	-2	0.5	100	-0.25	50	-1	-200	-0.25/-25	-300	-0.5/-50	50	-	SOT23
DSS9110Y	-100	-1	-3	0.625	150	-0.25	125	-1	-120	-0.25/-25	-320	-1/-100	100	320	SOT363

DUAL PNP 55V TO 100V



Part Number	V _{CEO} (V)	I _C (A)	I _{CM} (A)	P _D (W)	h _{FE}				V _{CE(sat)}				f _T (MHz)	R _{CE(sat)} (mΩ)	Package
					Min	@ I _C (A)	Min	@ I _C (A)	Max (mV)	@ I _C / I _B (A/mA)	Max (mV)	@ I _C / I _B (A/mA)			
ZDT751	-60	-2	-6	2.75	100	-0.5	40	-2	-300	-1/-100	-500	-2/-200	100	-	SM8
DSS5160FDB	-60	-1	-1.5	1	170	-0.1	70	-1	-180	-0.5/-50	-550	-1/-50	65	-	DFN2020-6

NPN 100V TO 400V



Part Number	V _{CEO} (V)	I _C (A)	I _{CM} (A)	P _D (W)	h _{FE}				V _{CE(sat)}				f _T (MHz)	R _{CE(sat)} (mΩ)	Package
					Min	@ I _C (A)	Min	@ I _C (A)	Max (mV)	@ I _C / I _B (A/mA)	Max (mV)	@ I _C / I _B (A/mA)			
FZT694B	120	1	2	2	400	0.2	150	0.4	250	0.1/0.5	500	0.4/5	130	-	SOT223
FMMT494	120	1	2	0.5	100	0.25	20	1	200	0.25/25	300	0.5/50	100	-	SOT23
ZTX694B	120	0.5	1	1	400	0.2	150	0.4	250	0.1/0.5	500	0.4/5	130	-	E-Line
FMMT624	125	1	3	0.625	300	0.2	100	1	50	0.1/10	220	0.5/10	100	-	SOT23
FMMT455	140	1	2	0.5	100	0.15	-	-	700	0.15/15	-	-	100	-	SOT23
ZTX455	140	1	2	1	100	0.15	-	-	700	0.15/15	-	-	100	-	E-Line
FZT855	150	5	10	3	100	1	15	5	65	0.5/50	110	1/100	90	-	SOT223
ZTX855	150	4	10	1.2	100	1	35	4	40	0.1/5	100	1/100	90	-	E-Line
ZXTN4004K	150	1	3	1.5	60	0.085	100	0.15	250	0.1/5	-	-	-	-	TO252 (DPAK)
FZT655	150	1	2	2	50	0.5	20	1	500	0.5/50	500	1/200	30	-	SOT223
ZXTN10150DZ	150	1	3	1.5	200	0.03	100	0.15	-	-	-	-	135	-	SOT89
ZXTN4004Z	150	1	3	1.5	60	0.085	100	0.15	-	-	-	-	-	-	SOT89
FCX495	150	1	2	1	100	0.25	50	0.5	200	0.25/25	300	0.5/50	100	-	SOT89
FMMT625	150	1	3	0.625	300	0.2	30	1	200	0.1/1	300	Jan-50	100	-	SOT23
FMMT495	150	1	2	0.5	100	0.25	50	0.5	200	0.25/25	300	0.5/50	100	-	SOT23
DXT5551P5	160	0.6	-	2.25	80	0.01	30	0.05	150	0.01/1	200	0.05/5	100	-	PowerDI [®] 5
DXT696BK	180	0.5	1	3.9	500	0.1	150	0.2	200	0.1/2	250	0.2/5	70	-	TO252 (DPAK)
FZT696B	180	0.5	1	2	500	0.1	150	0.2	200	0.05/0.5	250	0.2/5	70	-	SOT223
ZTX696B	180	0.5	1	1	500	0.1	150	0.2	200	0.05/0.5	200	0.1/2	70	-	E-Line
ZXTN4006Z	200	1	3	1.5	60	0.085	100	0.15	-	-	-	-	-	-	SOT89
FZT857	300	3.5	5	3	100	0.5	15	2	100	0.5/50	230	2/200	80	-	SOT223
ZTX857	300	3	5	1.2	100	0.5	15	2	100	0.5/50	140	1/100	80	-	E-Line
FZT657	300	0.5	1	2	40	0.01	50	0.1	500	0.1/10	-	-	30	-	SOT223
ZTX657	300	0.5	1	1	40	0.01	50	0.1	500	0.1/10	-	-	30	-	E-Line
FMMT497	300	0.5	1	0.5	80	0.1	20	0.25	200	0.1/10	300	0.25/25	75	-	SOT23
ZTX457	300	0.5	1	1	50	0.05	25	0.1	300	0.1/10	-	-	75	-	E-Line
DXT458P5	400	0.3	1	2.8	100	0.05	12	0.1	200	0.02/2	500	0.05/6	50	-	PowerDI [®] 5
FZT658	400	0.5	1	2	50	0.1	40	0.2	250	0.05/5	500	0.1/10	50	-	SOT223

NPN 100V TO 400V (CONTINUED)

Part Number	V _{CEO} (V)	I _C (A)	I _{CM} (A)	P _D (W)	h _{FE}				V _{CE(sat)}				f _T (MHz)	R _{CE(sat)} (mΩ)	Package
					Min	@ I _C (A)	Min	@ I _C (A)	Max (mV)	@ I _C / I _B (A/mA)	Max (mV)	@ I _C / I _B (A/mA)			
FCX658A	400	0.5	1	1	100	0.01	35	0.2	200	0.1/0	-	-	50	-	SOT89
ZXTN08400BFF	400	0.5	1	1.5	100	0.05	10	0.5	70	0.05/5	170	0.3/30	40	-	SOT23F
ZTX658	400	0.5	1	1	50	0.1	40	0.2	300	0.02/1	250	0.05/5	50	-	E-Line
FZT458	400	0.3	1	2	100	0.05	12	0.1	200	0.02/2	500	0.05/6	50	-	SOT223
ZTX458	400	0.3	-	1	100	0.05	12	0.1	200	0.02/2	500	0.05/6	50	-	E-Line
FCX458	400	0.225	0.5	1	100	0.05	12	0.1	200	0.02/2	500	0.05/6	50	-	SOT89
FMMT458	400	0.225	1	0.5	100	0.05	12	0.1	200	0.02/2	500	0.05/6	50	-	SOT23
FMMT459	450	0.15	0.5	0.625	50	0.03	-	-	75	0.02/2	90	0.05/6	50	-	SOT23

PNP 100V TO 400V

Part Number	V _{CEO} (V)	I _C (A)	I _{CM} (A)	P _D (W)	h _{FE}				V _{CE(sat)}				f _T (MHz)	R _{CE(sat)} (mΩ)	Package
					Min	@ I _C (A)	Min	@ I _C (A)	Max (mV)	@ I _C / I _B (A/mA)	Max (mV)	@ I _C / I _B (A/mA)			
DXTP2014P5	-140	-4	-10	3.2	100	-1	45	-3	-80	-0.5/-50	-120	-1/-100	120	92	PowerDI®5
ZXTP2014G	-140	-4	-10	3	100	-1	45	-3	-80	-0.5/-50	-120	-1/-100	120	92	SOT223
FZT955	-140	-4	-10	3	100	-1	75	-3	-120	-0.5/-50	-370	-3/-300	100	-	SOT223
ZXTP2014Z	-140	-3	-10	2.1	100	-1	45	-3	-60	-0.1/-5	-115	-1/-100	120	85	SOT89
ZXTP23140BFH	-140	-2.5	-5	1.25	100	-1	40	-2.5	-55	-0.1/5	-95	-1/-100	130	76	SOT23
ZXTP25140BFH	-140	-1	-3	1.25	100	-0.01	100	-0.1	-135	-0.1/-2	-230	-0.5/-25	75	180	SOT23
FZT795A	-140	-0.5	-1	2	250	-0.2	100	-0.3	-300	-0.2/-5	-250	-0.5/-50	100	-	SOT223
ZTX795A	-140	-0.5	-1	1	300	-0.01	250	-0.2	-300	-0.1/-1	-300	-0.2/-5	100	-	E-Line
FZT755	-150	-1	-2	2	50	-0.5	20	-1	-500	-0.5/-50	-500	-1/-200	30	-	SOT223
FMMT555	-150	-1	-2	0.5	50	-0.01	50	-0.3	-300	-0.1/-10	-	-	100	-	SOT23
FCX555	-180	-0.7	-2	2.1	100	-0.01	100	-0.1	-300	-0.1/-10	-400	-0.25/-25	100	-	SOT89
DXTP03200BP5	-200	-2	-5	3.2	100	-1	20	-2	-155	-0.5/-25	-275	-2/-400	105	135	PowerDI®5
ZXTP03200BG	-200	-2	-5	3	100	-1	20	-2	-155	-0.5/-25	-160	-1/-100	105	-	SOT223
ZXTP03200BZ	-200	-2	-5	2.4	100	-1	20	-2	-155	-0.5/-25	-160	-1/-100	105	130	SOT89
FZT796A	-200	-0.5	-1	2	300	-0.1	100	-0.4	-300	-0.1/-5	-300	-0.2/-20	100	-	SOT223
ZTX796A	-200	-0.5	-1	1	300	-0.1	250	-0.3	-200	-0.5/-2	-300	-0.1/-5	100	-	E-Line
FCX596	-200	-0.3	-1	1	100	-0.1	85	-0.25	-200	-0.1/-10	-350	-0.25/-25	150	-	SOT89
FMMT596	-200	-0.3	-1	0.5	100	-0.1	85	-0.25	-200	-0.1/-10	-350	-0.25/-25	150	-	SOT23
FZT957	-300	-1	-2	3	100	-0.5	90	-1	-165	-0.5/-100	-240	-1/-300	85	-	SOT223
ZTX957	-300	-1	-2	1.2	100	-0.5	90	-1	-100	-0.1/-10	-150	-0.5/-100	85	-	E-Line
FZT757	-300	-0.5	-1	2	40	-0.01	50	-0.1	-500	-0.1/-10	-	-	30	-	SOT223
ZTX757	-300	-0.5	-1	1	40	-0.01	50	-0.1	-500	-0.1/-10	-	-	30	-	E-Line
FMMT597	-300	-0.2	-1	0.5	100	-0.05	100	-0.1	-250	-0.05/-5	-250	-0.1/-20	75	-	SOT23
FZT958	-400	-0.5	-1.5	3	100	-0.5	90	-1	-165	-0.5/-100	-240	-1/-300	85	-	SOT223
FZT758	-400	-0.5	-1	2	50	-0.1	40	-0.2	-250	-0.05/-5	-500	-0.1/-10	50	-	SOT223
ZTX958	-400	-0.5	-1.5	1.2	100	-0.01	100	-0.5	-200	-0.1/-10	-400	-0.5/-100	85	-	E-Line
ZTX758	-400	-0.5	-1	1	50	-0.1	40	-0.2	-300	-0.02/-1	-250	-0.5/-5	50	-	E-Line
2DA1971	-400	-0.5	-1	1.5	140	-0.2	140	-0.1	-250	-0.1/-10	-400	-0.2/-40	75	-	SOT89
FZT558	-400	-0.2	-	2	100	-0.05	15	-0.1	-200	-0.02/-2	-500	-0.05/-6	50	-	SOT223
FCX558	-400	-0.2	-0.5	1	100	-0.05	15	-0.1	-200	-0.02/-2	-500	-0.05/-6	50	-	SOT89
ZXTP08400BFF	-400	-0.2	-1	1.5	100	-0.05	100	-0.2	-125	-0.05/-5	-220	-0.1/-10	50	-	SOT23F
FMMT558	-400	-0.15	-0.5	0.5	100	-0.05	15	-0.1	-200	-0.02/-2	-500	-0.05/-6	50	-	SOT23
FZT560	-500	-0.15	-0.5	2	100	-0.001	80	-0.05	-200	-0.02/-2	-500	-0.05/-10	60	-	SOT223
ZTX560	-500	-0.15	-0.5	1	100	-0.001	80	-0.05	-200	-0.02/-2	-500	-0.05/-10	60	-	E-Line
FMMT560	-500	-0.15	-0.5	0.5	100	-0.001	80	-0.05	-200	-0.02/-2	-500	-0.05/-10	60	-	SOT23

NPN > 400V

Part Number	V _{CEO} (V)	V _{CES} (V)	I _C (A)	I _{CM} (A)	P _D (W)	h _{FE}	@ I _C (A)	V _{CE(sat)}	@ I _C /I _B (A/Ma)	f _T (MHz)	Package
APT13003DI	450	700	1.5	3	24	16	0.5	0.3	0.5/100	4	TO251
APT13003DU	450	700	1.5	3	20	16	0.5	0.3	0.5/100	4	TO126
APT13003DZ	450	700	1	1.6	1.1	16	0.5	0.3	0.5/100	4	TO92
APT13003LZ	450	700	0.8	1.6	0.8	15	0.1	0.5	0.2/40	-	TO92
APT13003SU	450	700	1.3	2.6	20	13	0.5	0.3	0.5/100	4	TO126
APT13003SZ	450	700	1	1.6	1.1	13	0.5	0.3	0.5/100	4	TO92
APT13005SI	450	700	3.2	6.4	25	15	1	0.3	1/200	4	TO251
APT13005STF	450	700	3.2	6.4	28	15	1	0.3	1/200	4	TO220F-3
APT13005SU	450	700	3.2	6.4	20	15	1	0.3	1/200	4	TO126
APT13005T	450	700	4	8	75	15	1	0.3	1/200	4	TO220AB
APT13005TF	450	700	4	8	28	15	1	0.3	1/200	4	TO220F-3
APT27HZ	450	800	0.8	1.6	0.8	15	0.1	0.5	0.2/40	-	TO92
APT27Z	450	800	0.8	1.6	0.8	15	0.1	0.5	0.2/40	-	TO92
DXT13003DC	450	700	1.3	3	3	16	0.5	0.3	0.5/100	4	SOT223
DXT13003DK	450	700	1.5	3	3.9	16	0.5	0.3	0.5/100	4	TO252 (DPAK)
DXT13003EK	460	700	1.5	3	3.9	14	0.5	0.3	0.5/100	4	TO252 (DPAK)
APT13005DI	450	700	4	8	25	15	1	0.3	1/200	4	TO251
APT13005DTF	450	700	4	8	28	15	1	0.3	1/200	4	TO220F-3
APT13005DT	450	700	4	8	75	15	1	0.3	1/200	4	TO220AB
APT13003EU	465	700	1.5	3	20	13	0.5	0.3	0.5/100	4	TO126
APT13003EZ	465	700	1	1.6	1.1	13	0.5	0.3	0.5/100	4	TO92
APT13003HU	465	800	1.5	3	20	13	0.5	0.3	0.5/100	4	TO126
APT13003HZ	465	800	1	1.6	1.1	13	0.5	0.3	0.5/100	4	TO92
APT17N	480	700	0.05	0.1	0.2	20	0.01	-	-	-	SOT23
APT17Z	480	700	0.05	0.1	0.2	20	0.01	-	-	-	TO92
APT13003NZ	530	900	1.5	3	1	15	0.5	0.4	0.5/100	4	TO92

AC-DC SWITCHING TRANSISTORS



THE DIODES ADVANTAGE

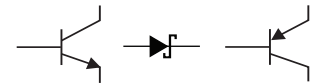
- **V_{CES} Rating up to 900V**
Suitable for most low power primary switching applications.
- **Integrated Collector-Emitter Diode**
Protects transistor from reverse voltage transients and allows free-wheeling operation.
- **Variety of Packages**
Available with SIP and surface-mount package options for flexibility of design.

DARLINGTON TRANSISTORS



Part Number	Product Type	V_{CE0} (V)	I_C (A)	I_{CM} (A)	P_D (W)	h_{FE} Min	@ I_C (A)	$V_{CE(sat)}$ Max (mV)	@ I_C (A)	@ I_B (mA)	f_T Min (MHz)	Package
ZDT6702	NPN + PNP	60 -60	1.75 -1.75	4 -4	2.75	3500 1500	2 -2	950 -1000	0.5 -0.5	0.5 -0.5	140 140	SM8
BCX38C	NPN	60	0.8	2	1	10000	0.5	1250	0.8	8	-	E-Line
FMMT38C	NPN	60	0.3	0.8	0.33	10000	0.5	1250	0.8	8	-	SOT23
FZT603	NPN	80	2	6	2	3000	1	1000	1	1	150	SOT223
ZTX603	NPN	80	1	4	1	5000	0.5	1000	1	1	150	E-Line
FZT7053	NPN	100	1.5	1.8	1.25	10000	0.1	1500	0.1	0.1	200	SOT223
FMMT634	NPN	100	0.9	5	0.625	15000	1	960	1	5	140	SOT23
ZTX614	NPN	100	0.8	-	1	10000	0.5	1250	0.8	8	-	E-Line
FMMT614	NPN	100	0.5	2	0.5	5000	0.5	1000	0.5	5	-	SOT23
FZT605	NPN	120	1.5	4	2	2000	1	1500	1	1	150	SOT223
FCX605	NPN	120	1	4	1	5000	0.5	1500	1	1	150	SOT89
ZXTN04120HK	NPN	120	1.5	4	3.9	2000	1	1500	1	1	150	TO252 (DPAK)
ZXTN04120HP5	NPN	120	1.5	4	3.2	2000	1	1500	1	1	150	PowerDI®5
ZXTN04120HFF	NPN	120	1	4	1.5	3000	1	1500	1	1	120	SOT23F
ZTX605	NPN	120	1	4	1	2000	1	1500	1	1	150	E-Line
FZT600	NPN	140	2	4	2	2000	0.5	1200	1	10	150	SOT223
FZT600B	NPN	140	2	4	2	10000	0.5	1200	1	10	150	SOT223
ZTX601B	NPN	160	1	4	1	10000	0.5	1200	1	10	150	E-Line
FMMT734	PNP	-100	-0.8	-5	0.625	15000	-1	-1050	-1	-5	140	SOT23
FZT705	PNP	-120	-2	-4	2	3000	-1	-1300	-1	-1	160	SOT223
ZTX705	PNP	-120	-1	-4	1	3000	-1	-1300	-1	-1	160	E-Line
FCX705	PNP	-120	-1	-4	1	3000	-1	-1300	-1	-1	160	SOT89
ZXTP05120HFF	PNP	-120	-1	-4	1.5	3000	-1	-1100	-1	-1	150	SOT23F

TRANSISTOR AND SCHOTTKY COMBINATIONS



Part Number	Product Type	V_{CE0} V_F (V)	I_C I_F (A)	I_{CM} I_{FSM} (A)	P_D (W)	h_{FE}	@ I_C (A)	$V_{CE(sat)}$ Max (mV)	@ I_C (A)	@ I_B (mA)	V_F Max (V)	@ I_C (A)	$R_{CE(sat)}$ (mΩ)	Package
ZXTPS717MC	PNP + Schottky	-12 40	-4 1.85	-12 12	1.5 1.2	300 -	-0.1 -	-140 -	-1 -	-10 -	- 0.5	- 1	65 -	DFN3020B-8
ZXTPS718MC	PNP + Schottky	-20 40	-3.5 1.85	-6 12	1.5 1.2	300 -	-0.1 -	-220 -	-1 -	-20 -	- 0.5	- 1	64 -	DFN3020B-8
ZXTPS720MC	PNP + Schottky	-40 40	-3 1.85	-4 12	1.5 1.2	300 -	-0.1 -	-220 -	-1 -	-50 -	- 0.5	- 1	104 -	DFN3020B-8
ZXTNS618MC	NPN + Schottky	20 40	4.5 1.85	12 12	1.5 1.2	300 -	-0.2 -	150 -	1 -	10 -	- 0.5	- 1	47 -	DFN3020B-8

DFN0606: WORLDS SMALLEST BIPOLAR TRANSISTORS



THE DIODES ADVANTAGE

- Miniature Package**
 The smallest package measures just 0.6mm x 0.6mm making these transistors ideal for portable and wearable applications.
- Higher Power Density**
 Thermally efficient packages enabling a greater power density to be achieved.
- Turn-on $V_{BE} < 1V$**
 Enabling portable applications to be fully turned-on under low voltage conditions.

NPN TRANSISTORS



V _{CEO} (V)	I _C (A)	Package												
		SOT223	SOT89	SOT23	SOT26	SOT323	SOT363	SOT523	SOT563	SOT963	DFN2020-3	DFN1006-3	DFN0806-3	DFN0606-3
20	1	DCP68	DCX68											
		DCP68-25	DCX68-25											
25	0.2			MMBT4124		MMST4124	MMDT4124 *							
30	1	FZTA14 #												
	0.5			MMBT6427 #		MMST6427 #								
	0.3			MMBTA13 #		MMSTA13 #								
				MMBTA14 #		MMSTA14 #								
	0.1			BC848A		BC848AW								
				BC848B		BC848BW								
				BC848C		BC848CW								
40	0.6	DZT2222A	DXT2222A	MMBT2222A		MMST2222A	MMDT2222A *	MMBT2222AT	MMDT2222V *					
				MMBT4401		MMST4401	MMDT4401 *	MMBT4401T						
	0.2		DXT3904	MMBT3904		MMST3904	MMDT3904 *	MMBT3904T	MMDT3904VC *	DST3904DJ *		MMBT3904LP	MMBT3904FA	MMBT3904FZ
							DMMT3904W *\$							
45	1	BCP54	BCX54											
		BCP54-16	BCX54-16											
	0.8			BC817-16										
				BC817-25										
				BC817-40										
				BCW66H										
	0.5					BC817-16W								
						BC817-25W								
						BC817-40W								
	0.1			BC847A		BC847AW	BC847BS *	BC847AT						
				BC847B		BC847BW		BC847BT	BC847BVC *	DST847BDJ *		BC847BLP	BC847BFA	BC847BFZ
				BC847C		BC847CW		BC847CT				BC847BLP4		
50	0.1													
60	1	BCP55	BCX55											
		BCP55-16	BCX55-16											
	0.5		BCV49 #	BCV47 #										
65	0.1			MMBTA05		MMSTA05								
				BC846A		BC846AW	BC846AS *							
80	1			BC846B		BC846BW								
		BCP56	BCX56	MMBTA28 #										
		BCP56-16	BCX56-16								BCP53-16PA			
			BSR43											
	0.5			BST52 #										
	0.5			MMBTA06		MMSTA06								
120	0.05					IMX8 *								
125	0.8			BCX41										
160	0.6	DZT5551	DXT5551	MMBT5551										
	0.2					DMMT5551 *\$	MMST5551	MMDT5551 *						
300	0.5	DZTA42	DXTA42	MMBTA42		MMDTA42 *								
	0.2						MMSTA42							
350	0.5		BST39	FMMT6517										

* = Dual device
= Darlington transistor
\$ = Matched transistors

PNP TRANSISTORS



V _{CEO} (V)	I _C (A)	Package												
		SOT223	SOT89	SOT23	SOT26	SOT323	SOT363	SOT523	SOT563	SOT963	DFN2020-3	DFN1006-3	DFN0806-3	DFN0606-3
20	1	DCP69	DCX69											
		DCP69-16	DCX69-16											
		DCP69-25	DCX69-25											
25	0.2			MMBT4126		MMST4126	MMDT4126 *							
30	0.1			BC858A		BC858AW								
				BC858B		BC858BW								
				BC858C		BC858CW								
	0.5			MMBT463 #		MMST463 #								
				MMBT464 #		MMST464 #								
40	0.6			MMBT4403		MMST4403	MMDT4403 *	MMBT4403T						
	0.2		DXT3906	MMBT3906	DMMT3906 *\$	MMST3906	MMDT3906 *	MMBT3906T	MMDT3906VC *	DST3906DJ *		MMBT3906LP	MMBT3906FA	MMBT3906FZ
							DMMT3906W *\$							
45	1	BCP51	BCX51											
		BCP51-16	BCX51-16											
	0.8			BCW68H										
	0.5			BC807-16		BC807-16W								
				BC807-25		BC807-25W								
				BC807-40		BC807-40W								
	0.1			BC857A		BC857AW		BC857AT	BCM857BV *\$					
				BC857B		BC857BW	BC857BS *	BC857BT	BC857BV *	DST857BDJ *		BC857BLP	BC857BFA	BC857BFZ
				BC857C		BC857CW		BC857CT				BC857BLP4		
50	0.5				IMT17 *									
	0.1									DP0150ADJ *		DP0150ALP4		
										DP0150BDJ *		DP0150BLP4		
60	1	BCP52	BCX52											
		BCP52-16	BCX52-16											
	0.6	DZT2907A	DXT2907A	MMBT2907A		MMST2907A	MMDT2907A *	MMBT2907AT	MMDT2907V *					
	0.5			BCV46 #										
				MMBT455		MMST455								
65	0.1			BC856A		BC856AW	BC856AS *							
				BC856B		BC856BW								
80	1	BCP53	BCX53											
		BCP53-16	BCX53-16								BC53-16PA			
			BSR33											
	0.5			MMBT456		MMST456								
150	0.6	DZT5401	DXT5401	MMBT5401										
	0.2				DMMT5401 *\$	MMST5401	MMDT5401 *							
300	0.5	DZTA92	DXTA92	MMBT492										
	0.1					MMST492								
350	0.5			FMMT6520										

* = Dual device

= Darlington transistor

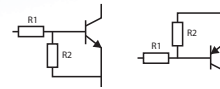
\$ = Matched transistors

NPN & PNP TRANSISTOR COMBINATIONS



V _{CEO} (V)	I _C (A)	Package				
		SOT26	SOT363	SOT563	SOT963	DFN1310H4-6
25	0.2		MMDT4146			
40	0.6		MMDT4413			
	0.2	LBN150B01	MMDT3946		DST3946DPJ	MMDT3946LP4
45	0.1		BC847PN	BC847BVN	DST847BPDP6	
50	0.1				DC0150ADJ	
					DC0150BDJ	
60	0.6	MMDT2227M	MMDT2227			
		DMB2227A				
65	0.6		HBDM60V600W			
150	0.2		MMDT5451			

NPN & PNP PRE-BIAS TRANSISTORS



V _{CEO} (V)	I _C (A)	Product Type	Bias Resistors				Package		
			R1 (PNP) (KΩ)	R2 (PNP) (KΩ)	R1 (NPN) (KΩ)	R2 (NPN) (KΩ)	SOT563 P _D = 150mW	SOT363 P _D = 200mW	SC74R P _D = 300mW
50	0.1	NPN = 0.1A / PNP = 0.5A							
		R1 ≠ R2	0.1	10	10	-	-	MIMD10A	DIMD10A
		R1 = R2	4.7	4.7	4.7	4.7	DCX143EH	DCX143EU	
			10	10	10	10	DCX114EH	DCX114EU	DCX114EK
			22	22	22	22	DCX124EH	DCX124EU	DCX124EK
			47	47	47	47	DCX144EH	DCX144EU	DCX144EK
			100	100	100	100		DCX115EU	
		0.47 R1 ≠ R2	0.22	10	0.22	10	DCX122LH	DCX122LU	
			0.47	10	0.47	10	DCX142JH	DCX142JU	
			2.2	47	2.2	47	DCX123JH	DCX123JU	DCX123JK
			4.7	47	4.7	47		DCX143ZU	
			10	47	10	47	DCX114YH	DCX114YU	DCX114YK
		R1 only	0.22	-	0.22	-	DCX122TH	DCX122TU	
			0.47	-	0.47	-	DCX142TH	DCX142TU	
			4.7	-	4.7	-	DCX143TH	DCX143TU	DCX143TK
			10	-	10	-	DCX114TH	DCX114TU	DCX114TK
		R1(PNP) ≠ R2(PNP) = R1(NPN) = R2(NPN)	1	10	10	10	DCX100NS		
		R2(PNP) ≠ R1(PNP) = R1(NPN) = R2(NPN)	10	47	10	10	DCX4710H		

SOT963: SMALLEST DUAL PACKAGE



THE DIODES ADVANTAGE

- **1mm² Footprint**
Smallest dual and complementary footprint to increase circuit density.
- **Off Board Profile of 0.5mm**
Reducing down the height in ultra-thin PCB applications.
- **Leaded Package**
Enabling visual optical inspection of the solder joint and avoids the need for X-ray inspection.

NPN PRE-BIAS TRANSISTORS



V _{CEO} (V)	I _C (A)	Product Type	Bias Resistors		Package					
			R1 (KΩ)	R2 (KΩ)	Single				Dual	
					DFN1006-3 P _D = 250mW	SOT523 P _D = 150mW	SOT323 P _D = 200mW	SOT23 P _D = 200mW	SOT563 P _D = 150mW	SOT363 P _D = 200mW
50	0.5	R1 = R2	1	1			DDTD113EU	DDTD113EC		
			2.2	2.2			DDTD123EU	DDTD123EC		
			4.7	4.7			DDTD143EU	DDTD143EC		
			10	10			DDTD114EU	DDTD114EC		
		R1 ≠ R2	0.22	4.7			DDTD122JU	DDTD122JC		
			0.22	10			DDTD122LU	DDTD122LC		
			0.47	10			DDTD142JU	DDTD142JC		
			1	10			DDTD113ZU	DDTD113ZC		
			2.2	10			DDTD123YU	DDTD123YC		
			3.3	10			DDTD133HU	DDTD133HC		
		R1 only	0.22	-			DDTD122TU	DDTD122TC		
			0.47	-			DDTD142TU	DDTD142TC		
			2.2	-			DDTD123TU	DDTD123TC		
			4.7	-			DDTD143TU	DDTD143TC		
			10	-			DDTD114TU	DDTD114TC		
		R2 only	-	10			DDTD114CU	DDTD114GC		
	0.1	R1 = R2	2.2	2.2		DDTC123EE	DDTC123EUA	DDTC123ECA		
			4.7	4.7		DDTC143EE	DDTC143EUA	DDTC143ECA	DDC143EH	DDC143EU
			10	10	DDTC114ELP	DDTC114EE	DDTC114EUA	DDTC114ECA	DDC114EH	DDC114EU
			22	22		DDTC124EE	DDTC124EUA	DDTC124ECA	DDC124EH	DDC124EU
			47	47	DDTC144ELP	DDTC144EE	DDTC144EUA	DDTC144ECA	DDC144EH	DDC144EU
			100	100		DDTC115EE	DDTC115EUA	DDTC115ECA		DDC115EU
		R1 ≠ R2	0.22	10		DDTC122LE	DDTC122LU		DDC122LH	DDC122LU
			0.47	10		DDTC142JE	DDTC142JU		DDC142JH	DDC142JU
			1	10		DDTC113ZE	DDTC113ZUA	DDTC113ZCA		
			2.2	10		DDTC123YE	DDTC123YUA	DDTC123YCA		
			2.2	47	DDTC123JLP	DDTC123JE	DDTC123JUA	DDTC123JCA	DDC123JH	DDC123JU
			4.7	10		DDTC143XE	DDTC143XUA	DDTC143XCA		
			4.7	22		DDTC143FE	DDTC143FUA	DDTC143FCA		
			4.7	47	DDTC143ZLP	DDTC143ZE	DDTC143ZUA	DDTC143ZCA		DDC143ZU
			10	4.7		DDTC114WE	DDTC114WUA	DDTC114WCA		
			10	47	DDTC114YLP	DDTC114YE	DDTC114YUA	DDTC114YCA	DDC114YH	DDC114YU
			22	47		DDTC124XE	DDTC124XUA	DDTC124XCA		
			47	10		DDTC144VE	DDTC144VUA	DDTC144VCA		
			47	22		DDTC144WE	DDTC144WUA	DDTC144WCA		
		R1 only	0.22	-		DDTC122TE	DDTC122TU		DDC122TH	DDC122TU
			0.47	-		DDTC142TE	DDTC142TU		DDC142TH	DDC142TU
			1	-	DDTC113TLP	DDTC113TE	DDTC113TUA	DDTC113TCA		
			2.2	-		DDTC123TE	DDTC123TUA	DDTC123TCA		
			4.7	-		DDTC143TE	DDTC143TUA	DDTC143TCA	DDC143TH	DDC143TU
			10	-		DDTC114TE	DDTC114TUA	DDTC114TCA	DDC114TH	DDC114TU
			22	-		DDTC124TE	DDTC124TUA	DDTC124TCA		
			47	-		DDTC144TE	DDTC144TUA	DDTC144TCA	DDC144TH	DDC144TU
			100	-		DDTC115TE	DDTC115TUA	DDTC115TCA		
			200	-		DDTC125TE	DDTC125TUA	DDTC125TCA		
		R2 only	-	10		DDTC114GE	DDTC114GUA	DDTC114GCA		
			-	22		DDTC124GE	DDTC124GUA	DDTC124GCA		
			-	47		DDTC144GE	DDTC144GUA	DDTC144GCA		
			-	100		DDTC115GE	DDTC115GUA	DDTC115GCA		

PNP PRE-BIAS TRANSISTORS



V _{CEO} (V)	I _C (A)	Product Type	Bias Resistors		Package						
			Single				Dual				
			R1 (KΩ)	R2 (KΩ)	DFN1006-3 P _D = 250mW	SOT523 P _D = 150mW	SOT323 P _D = 200mW	SOT23 P _D = 200mW	SOT563 P _D = 150mW	SOT363 P _D = 200mW	SOT26 P _D = 300mW
50	0.5	R1 = R2	1	1			DDTB113EU	DDTB113EC			
			2.2	2.2			DDTB123EU	DDTB123EC			
			4.7	4.7			DDTB143EU	DDTB143EC			
			10	10			DDTB114EU	DDTB114EC			
		R1 ≠ R2	0.22	4.7			DDTB122JU	DDTB122JC			
			0.22	10			DDTB122LU	DDTB122LC			
			0.47	10			DDTB142JU	DDTB142JC			
			1	10			DDTB113ZU	DDTB113ZC			
			2.2	10			DDTB123YU	DDTB123YC			
			3.3	10			DDTB133HU	DDTB133HC			
		R1 only	0.22	-			DDTB122TU	DDTB122TC			
			0.47	-			DDTB142TU	DDTB142TC			
			2.2	-			DDTB123TU	DDTB123TC			
			4.7	-			DDTB143TU	DDTB143TC			
			10	-			DDTB114TU	DDTB114TC			
		R2 only	-	10			DDTB114GU	DDTB114GC			
	0.1	R1 = R2	2.2	2.2		DDTA123EE	DDTA123EUA	DDTA123ECA			
			4.7	4.7		DDTA143EE	DDTA143EUA	DDTA143ECA	DDA143EH	DDA143EU	
			10	10		DDTA114EE	DDTA114EUA	DDTA114ECA	DDA114EH	DDA114EU	DDA114EK
			22	22		DDTA124EE	DDTA124EUA	DDTA124ECA	DDA124EH	DDA124EU	DDA124EK
			47	47	DDTA144ELP	DDTA144EE	DDTA144EUA	DDTA144ECA	DDA144EH	DDA144EU	DDA144EK
			100	100		DDTA115EE	DDTA115EUA	DDTA115ECA			
		R1 ≠ R2	0.22	10		DDTA122LE	DDTA122LU		DDA122LH	DDA122LU	
			0.47	10		DDTA142JE	DDTA142JU		DDA142JH	DDA142JU	
			1	10		DDTA113ZE	DDTA113ZUA	DDTA113ZCA			
			2.2	10		DDTA123YE	DDTA123YUA	DDTA123YCA			
			2.2	47		DDTA123JE	DDTA123JUA	DDTA123JCA	DDA123JH	DDA123JU	DDA123JK
			4.7	10		DDTA143XE	DDTA143XUA	DDTA143XCA			
			4.7	22		DDTA143FE	DDTA143FUA	DDTA143FCA			
			4.7	47		DDTA143ZE	DDTA143ZUA	DDTA143ZCA			
			10	4.7		DDTA114WE	DDTA114WUA	DDTA114WCA			
			10	47	DDTA114YLP	DDTA114YE	DDTA114YUA	DDTA114YCA	DDA114YH	DDA114YU	DDA114YK
			22	47		DDTA124XE	DDTA124XUA	DDTA124XCA			
			47	10		DDTA144VE	DDTA144VUA	DDTA144VCA			
			47	22		DDTA144WE	DDTA144WUA	DDTA144WCA			
		R1 only	0.22	-		DDTA122TE	DDTA122TU		DDA122TH	DDA122TU	
			0.47	-		DDTA142TE	DDTA142TU		DDA142TH	DDA142TU	
			1	-		DDTA113TE	DDTA113TUA	DDTA113TCA			
			2.2	-		DDTA123TE	DDTA123TUA	DDTA123TCA			
			4.7	-		DDTA143TE	DDTA143TUA	DDTA143TCA	DDA143TH	DDA143TU	DDA143TK
			10	-		DDTA114TE	DDTA114TUA	DDTA114TCA	DDA114TH	DDA114TU	DDA114TK
			22	-		DDTA124TE	DDTA124TUA	DDTA124TCA			
			47	-		DDTA144TE	DDTA144TUA	DDTA144TCA		DDA144TU	
			100	-		DDTA115TE	DDTA115TUA	DDTA115TCA			
			200	-		DDTA125TE	DDTA125TUA	DDTA125TCA			
		R2 only	-	10		DDTA114GE	DDTA114GUA	DDTA114GCA			
			-	22		DDTA124GE	DDTA124GUA	DDTA124GCA			
			-	47		DDTA144GE	DDTA144GUA	DDTA144GCA			
			-	100		DDTA115GE	DDTA115GUA	DDTA115GCA			



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