



UTD484

Power MOSFET

N-CHANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR

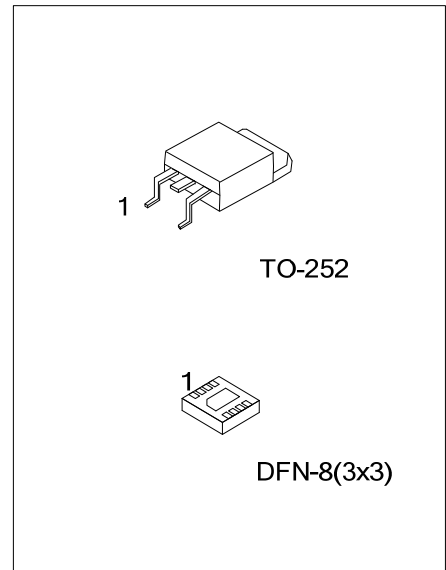
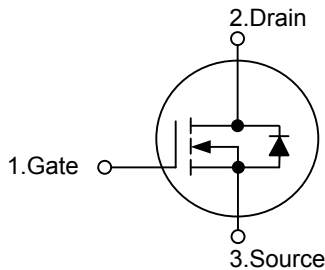
DESCRIPTION

The **UTD484** uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with low gate voltages. This device is suitable for use as a load switch or in PWM applications.

FEATURES

- * $R_{DS(ON)} < 15m\Omega @ V_{GS} = 10V, I_D = 20A$
- * Low capacitance
- * Low gate charge
- * Fast switching capability
- * Avalanche energy specified

SYMBOL



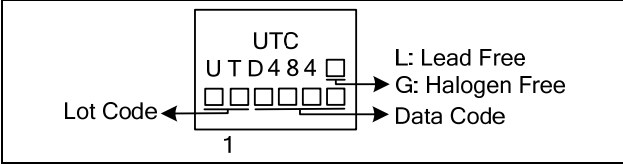
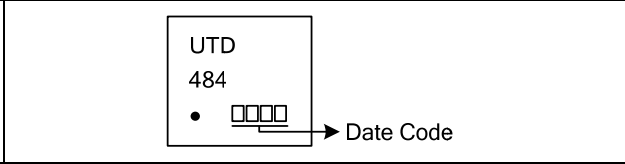
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
UTD484L-TN3-T	UTD484G-TN3-T	TO-252	G	D	S	-	-	-	-	-	Tube
UTD484L-TN3-R	UTD484G-TN3-R	TO-252	G	D	S	-	-	-	-	-	Tape Reel
-	UTD484G-K08-3030-R	DFN-8(3x3)	S	S	S	G	D	D	D	D	Tape Reel

Note: Pin Assignment: G: Gate D: Drain S: Source

UTD484L-TN3-R	(1)Packing Type	(1) R: Tape Reel
	(2)Package Type	(2) TN3: TO-252, K08-3030: DFN8(3x3)
	(3)Green Package	(3) L: Lead Free, G: Halogen Free and Lead Free

■ MARKING

TO-252	DFN-8(3×3)
 <p>The diagram shows a TO-252 package with the following markings: 'UTC' at the top, 'UTD484' followed by a small square, and a row of five squares below. An arrow labeled 'Lot Code' points to the first square, and an arrow labeled 'Data Code' points to the last square. A '1' is printed below the squares. To the right, 'L: Lead Free' and 'G: Halogen Free' are listed with arrows pointing to the 'Data Code' area.</p>	 <p>The diagram shows a DFN-8(3x3) package with the following markings: 'UTD' at the top, '484' below it, and a dot followed by four squares. An arrow labeled 'Date Code' points to the four squares.</p>

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■ ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	30	V
Gate-Source Voltage		V_{GSS}	± 20	V
Continuous Drain Current	$T_C = 25^\circ\text{C}$	I_D	25	A
Pulsed Drain Current(Note 1)		I_{DM}	80	A
Avalanche Current(Note 1)		I_{AR}	15	A
Repetitive avalanche energy $L=0.3\text{mH}$ (Note 1)		E_{AR}	33	mJ
Power Dissipation	$T_C = 25^\circ\text{C}$	TO-252 DFN-8(3x3)	41	W
	$T_A = 25^\circ\text{C}$	TO-252	2.1	
		DFN-8(3x3) (Notes 3)	1.9	
Junction Temperature		T_J	+150	$^\circ\text{C}$
Storage Temperature		T_{STG}	-55 ~ +175	$^\circ\text{C}$

Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

2. Pulse width limited by $T_{J(MAX)}$

3. Exposed pad is ground and must be soldered to PCB

■ THERMAL DATA

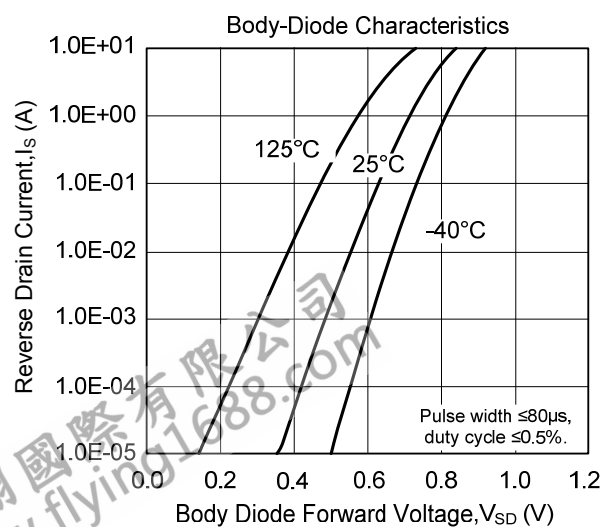
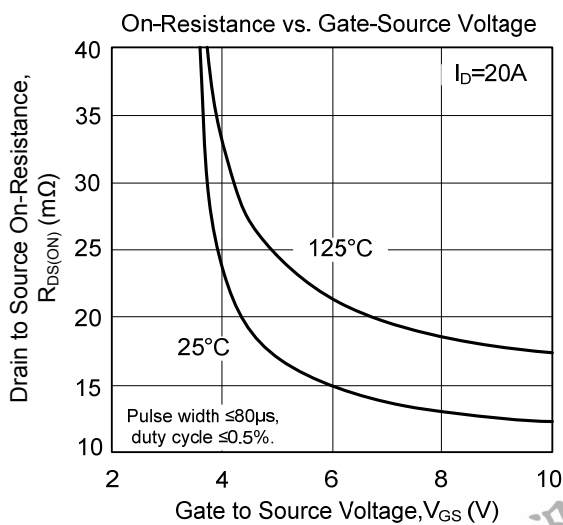
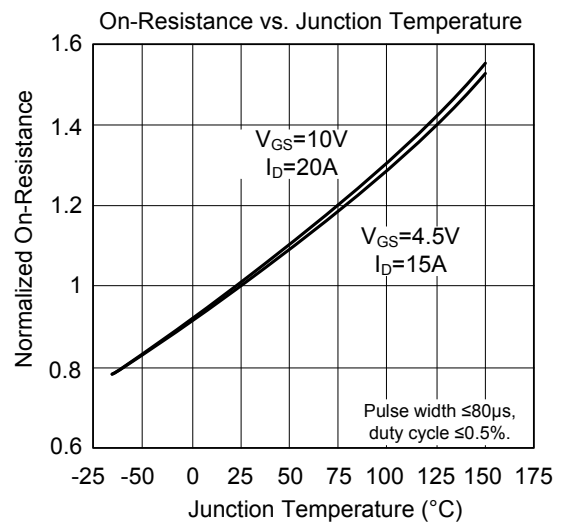
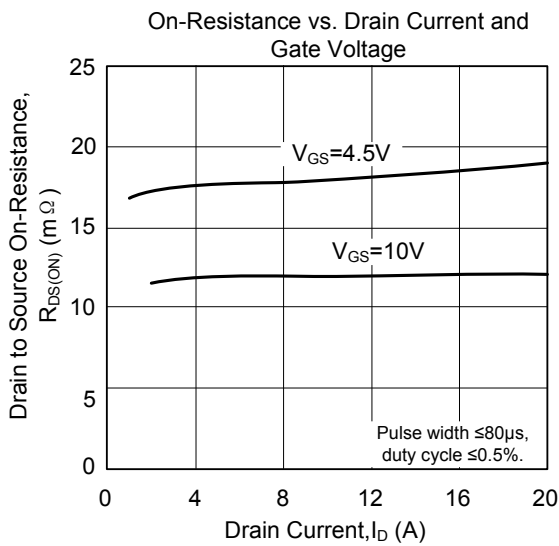
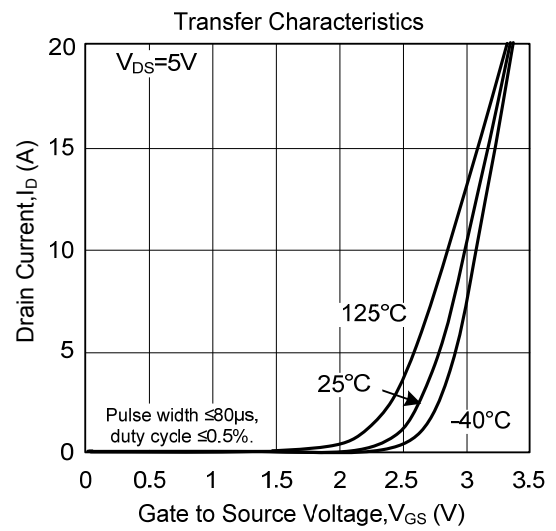
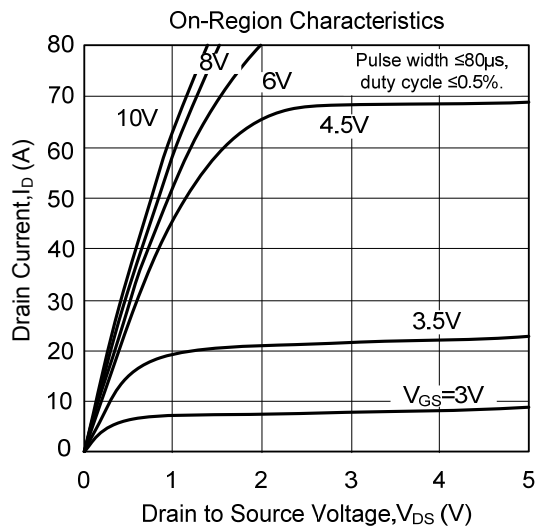
PARAMETER		SYMBOL	MIN	TYP	MAX	UNIT
Junction-to-Ambient	TO-252	θ_{JA}		55	60	$^\circ\text{C/W}$
	DFN-8(3x3)				65	$^\circ\text{C/W}$
Junction-to-Case	TO-252/DFN-8(3x3)	θ_{JC}		2.3	3	$^\circ\text{C/W}$

■ ELECTRICAL CHARACTERISTICS (T_J =25°C, unless otherwise specified)

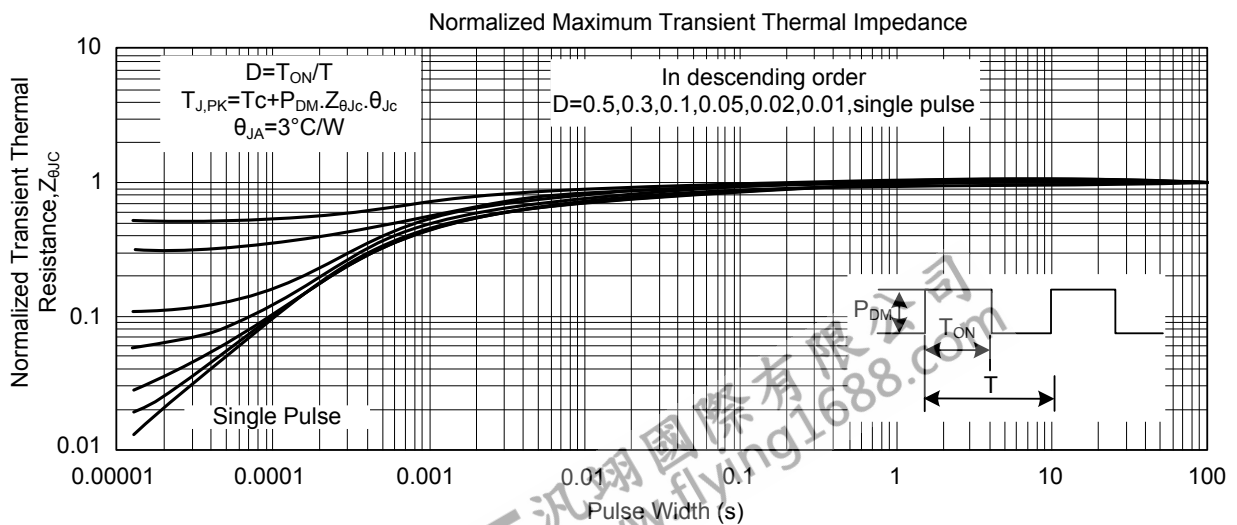
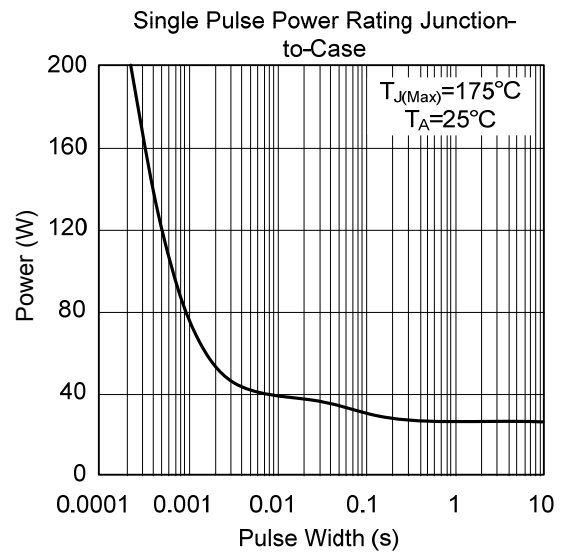
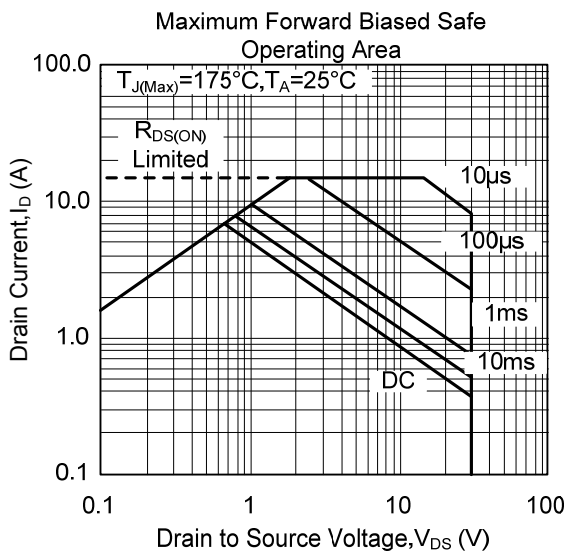
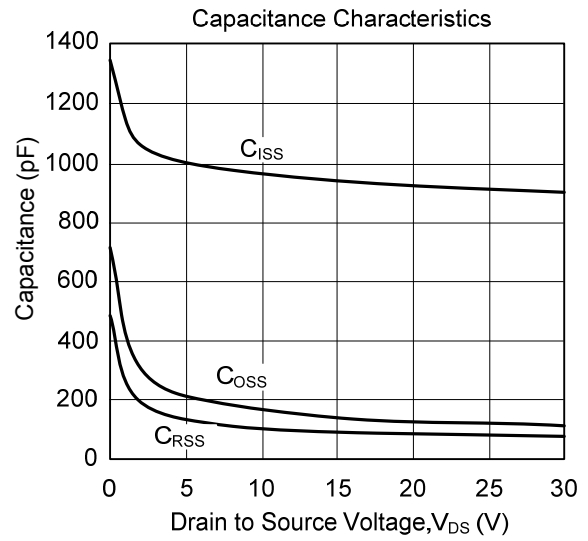
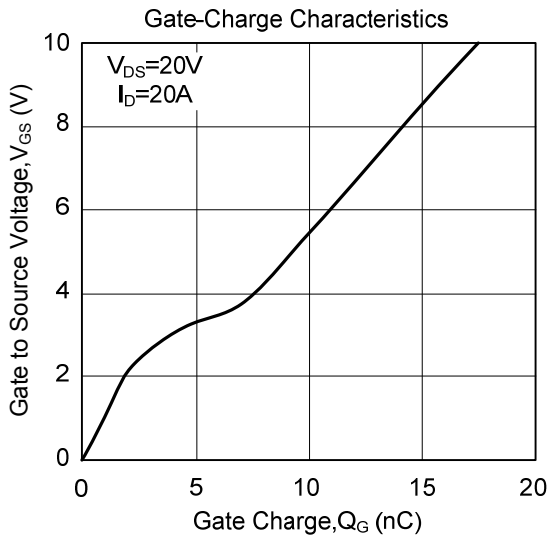
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0 V, I _D =250 μA	30			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =24V, V _{GS} =0 V			1	μA
Gate-Body Leakage Current	I _{GSS}	V _{DS} =0 V, V _{GS} = ±20V			±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250 μA	1	1.5	2.5	V
On State Drain Current	I _{D(ON)}	V _{DS} =5 V, V _{GS} =10V	80			A
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =10 V, I _D =20 A		12.1	15	mΩ
		V _{GS} =4.5 V, I _D =15 A		18.5	23	
DYNAMIC PARAMETERS						
Input Capacitance	C _{ISS}	V _{DS} =15 V, V _{GS} =0V, f=1MHz		938	1220	pF
Output Capacitance	C _{OSS}			142		
Reverse Transfer Capacitance	C _{RSS}			99		
SWITCHING PARAMETERS						
Total Gate Charge	Q _G	V _{DS} =15V, V _{GS} =10V, I _D =20 A		17.5	21	nC
Gate Source Charge	Q _{GS}			3		
Gate Drain Charge	Q _{GD}			4.1		
Turn-ON Delay Time	t _{D(ON)}	V _{GS} =10V, V _{DS} =15V, R _L =0.75Ω, R _{GEN} =3Ω		5		ns
Turn-ON Rise Time	t _R			12		
Turn-OFF Delay Time	t _{D(OFF)}			19		
Turn-OFF Fall-Time	t _F			6		
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Diode Forward Voltage	V _{SD}	I _S =1A, V _{GS} =0V		0.71	1	V
Maximum Body-Diode Continuous Current	I _S				21	A
Body Diode Reverse Recovery Time	t _{RR}	I _F =20 A, dI/dt=100A/μs		19	21	ns
Body Diode Reverse Recovery Charge	Q _{RR}				10	12

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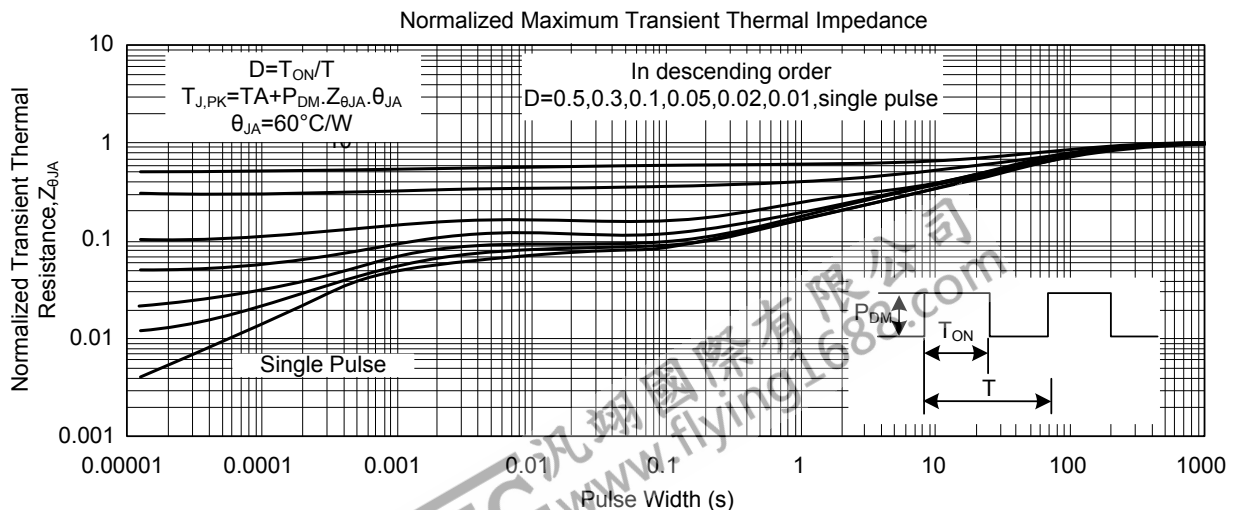
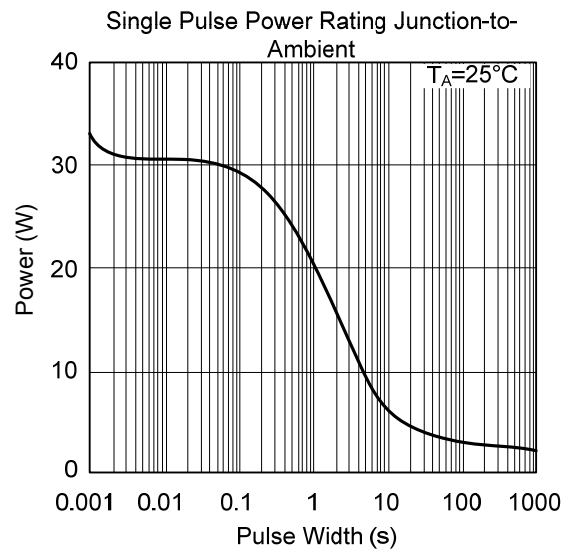
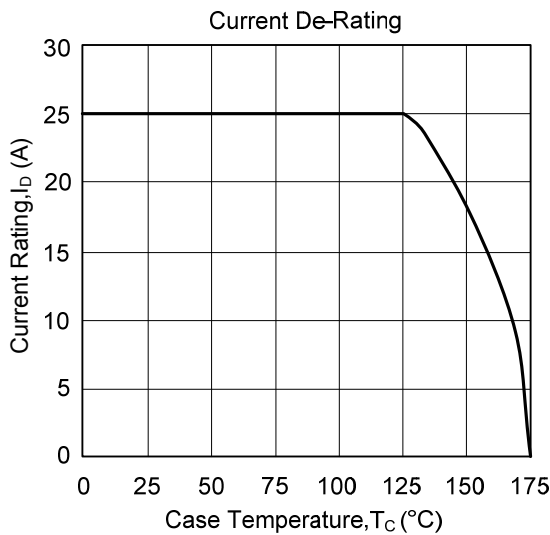
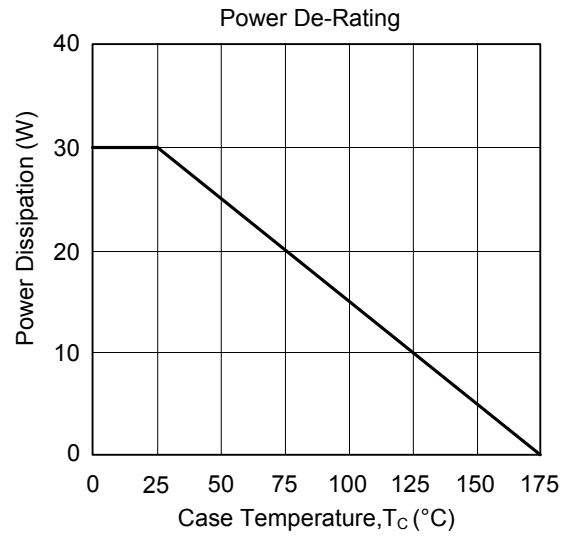
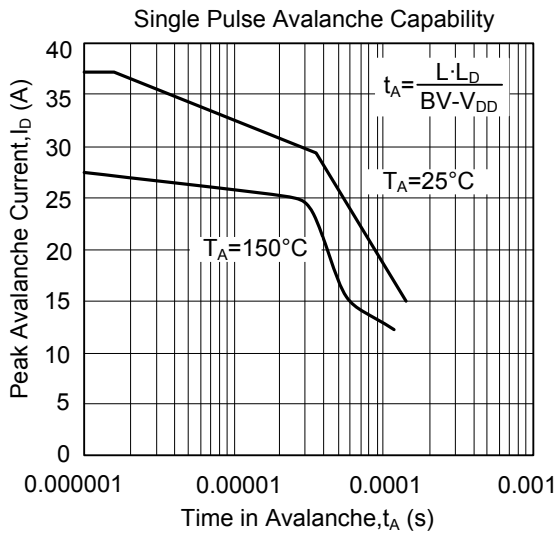
TYPICAL CHARACTERISTICS



TYPICAL CHARACTERISTICS(Cont.)



■ TYPICAL CHARACTERISTICS(Cont.)



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