



DTC143X

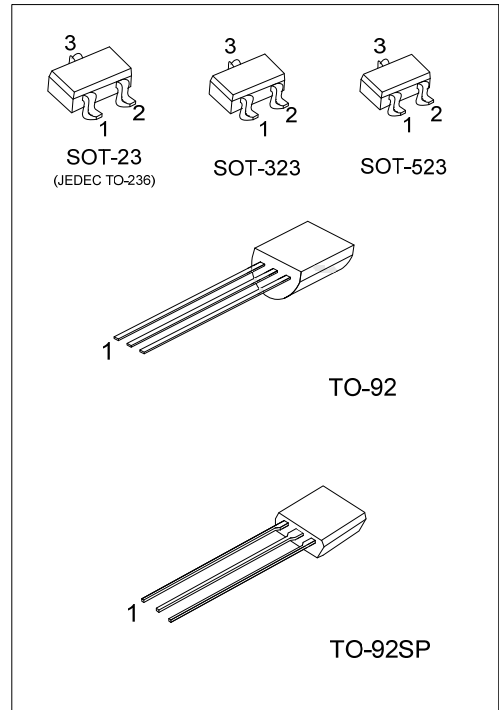
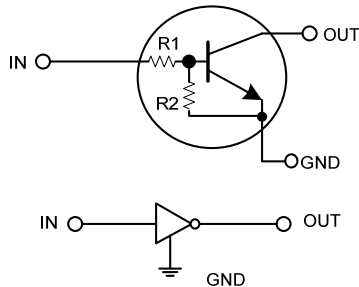
NPNDIGITAL TRANSISTOR

NPN DIGITAL TRANSISTOR (BUILT-IN RESISTORS)

■ FEATURES

- * Built-in bias resistors that implies easy ON/OFF applications.
- * The bias resistors are thin-film resistors with complete isolation to allow negative input.

■ EQUIVALENT CIRCUIT



■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
DTC143XL-AE3-R	DTC143XG-AE3-R	SOT-23	I	G	O	Tape Reel
DTC143XL-AL3-R	DTC143XG-AL3-R	SOT-323	I	G	O	Tape Reel
DTC143XL-AN3-R	DTC143XG-AN3-R	SOT-523	I	G	O	Tape Reel
DTC143XL-T92-B	DTC143XG-T92-B	TO-92	G	O	I	Tape Box
DTC143XL-T92-K	DTC143XG-T92-K	TO-92	G	O	I	Bulk
DTC143XL-T9S-B	DTC143XG-T9S-B	TO-92SP	G	O	I	Tape Box
DTC143XL-T9S-K	DTC143XG-T9S-K	TO-92SP	G	O	I	Bulk

Note: Pin Assignment: I: IN G: GND O: OUT

<p>DTC143XG-AE3-R</p>	<p>(1) B: Tape Box, K: Bulk, R: Tape Reel (2) AE3: SOT-23, AL3: SOT-323, AN3: SOT-523, T92: TO-92, T9S: TO-92SP (3) G: Halogen Free and Lead Free, L: Lead Free</p>
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■ MARKING

SOT-23 / SOT-323 / SOT-523	TO-92	TO-92SP

DTC143X

NPN DIGITAL TRANSISTOR

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

PARAMETER		SYMBOL	RATINGS	UNIT
Supply Voltage		V_{CC}	50	V
Input Voltage		V_{IN}	-7 ~ +20	V
Output Current		I_O	100	mA
		$I_{C(MAX)}$	100	
Power Dissipation	SOT-23/SOT-323	P_D	200	mW
	SOT-523		150	
	T0-92		625	
	T0-92SP		550	
Junction Temperature		T_J	+150	$^{\circ}\text{C}$
Storage Temperature		T_{STG}	-55 ~ +150	$^{\circ}\text{C}$

Note: 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.

■ ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Voltage	$V_{I(OFF)}$	$V_{CC}=5\text{V}, I_O=100\mu\text{A}$			0.3	V
	$V_{I(ON)}$	$V_O=0.3\text{V}, I_O=20\text{mA}$	2.5			
Output Voltage	$V_{O(ON)}$	$I_O/I_I=10\text{mA}/0.5\text{mA}$		0.1	0.3	V
Input Current	I_I	$V_I=5\text{V}$			1.8	mA
Output Current	$I_{O(OFF)}$	$V_{CC}=50\text{V}, V_I=0\text{V}$			0.5	μA
DC Current Gain	h_{FE}	$V_O=5\text{V}, I_O=10\text{mA}$	30			
Input Resistance	R_1		3.29	4.7	6.11	K Ω
Resistance Ratio	R_2/R_1		1.7	2.1	2.6	
Transition Frequency	f_T	$V_{CE}=10\text{V}, I_E=-5\text{mA}, f=100\text{MHz}$ (Note)		250		MHz

Note: Transition frequency of the device.

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