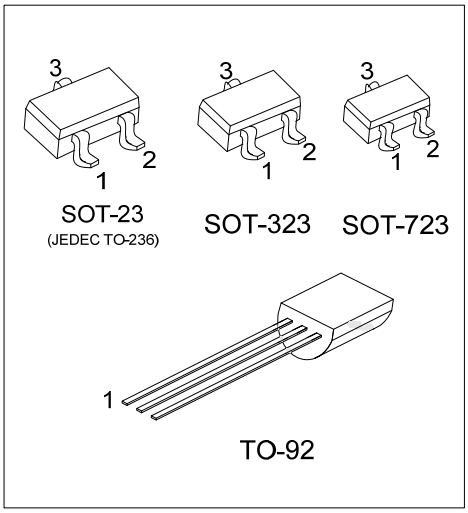
DTC143E

NPN SILICON TRANSISTOR

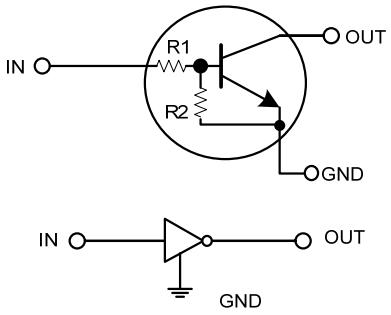
NPN DIGITAL TRANSISTOR (BUILT-IN RESISTORS)



■ 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.

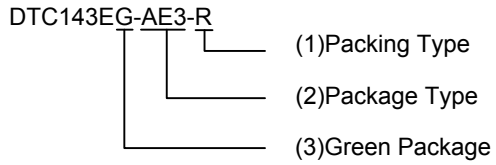
■ EQUIVALENT CIRCUIT



■ ORDERING INFORMATION

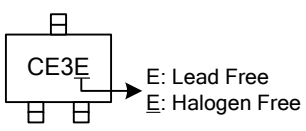
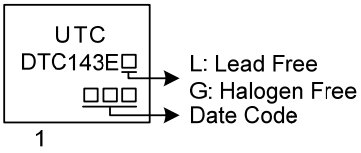
Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
DTC143EG-AE3-R	DTC143EG-AE3-R	SOT-23	I	G	O	Tape Reel
DTC143EG-AL3-R	DTC143EG-AL3-R	SOT-323	I	G	O	Tape Reel
DTC143EG-AQ3-R	DTC143EG-AQ3-R	SOT-723	I	G	O	Tape Reel
DTC143EL-T92-B	DTC143EG-T92-B	TO-92	G	O	I	Tape Box
DTC143EL-T92-K	DTC143EG-T92-K	TO-92	G	O	I	Bulk

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



(1) B: Tape Box, K: Bulk, R: Tape Reel
(2) AE3: SOT-23, AL3: SOT-323, AQ3: SOT-723
T92: TO-92
(3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING

SOT-23 / SOT-323 / SOT-723	TO-92
	

■ ABSOLUTE MAXIMUM RATINGS (T_A=25°C, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Supply Voltage		V_{CC}	50	V
Input Voltage		V_{IN}	-10 ~ +30	V
Output Current		I_C	100	mA
Power Dissipation	SOT-23/ SOT-323	P_D	400	mW
	SOT-723		125	mW
	TO-92		625	mW
Junction Temperature		T_J	+150	°C
Storage Temperature		T_{STG}	-55 ~ +150	°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. Device mounted on PCB 50mm × 50mm × 1.6mm

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Voltage	$V_{IN(OFF)}$	V_{CC} = 5V, I_{OUT} =100μA			0.5	V
	$V_{IN(ON)}$	V_{OUT} = 0.3V, I_{OUT} = 20mA	3			V
Output Voltage	$V_{OUT(ON)}$	I_{OUT}/I_{IN} = 10mA/0.5 mA		0.1	0.3	V
Input Current	I_{IN}	V_{IN} = 5V			1.8	mA
Output Current	$I_{OUT(OFF)}$	V_{CC} = 50V , V_{IN} = 0V			0.5	μA
DC Current Gain	h_{FE}	V_{OUT} = 5V, I_{OUT} = 10mA	20			
Input Resistance	R_1		3.29	4.7	6.11	KΩ
Resistance Ratio	$\frac{R_2}{R_1}$		0.8	1	1.2	
Transition Frequency	f_T	V_{CE} =10V, I_E = -5mA ,f =100MHz (Note)		250		MHz

Note: Transition frequency of the device

■ TYPICAL CHARACTERISTIC