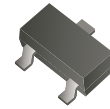


DTC144EE-HF (NPN)

RoHS Device
Halogen Free

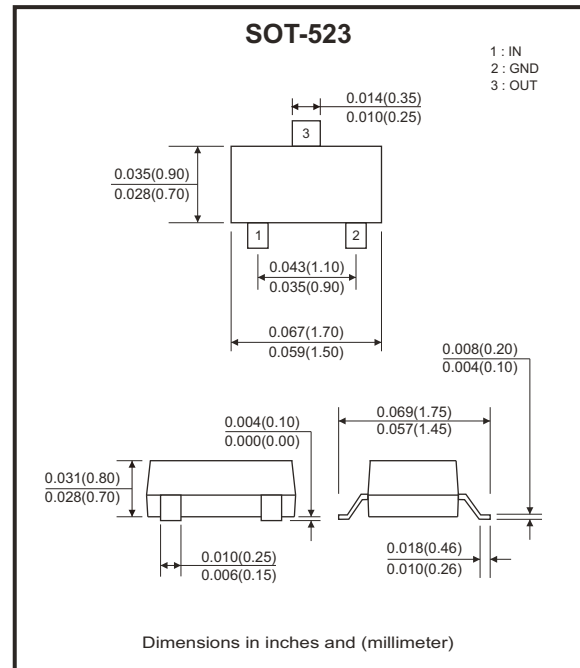


Features

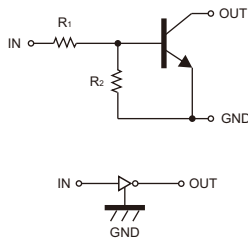
- Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see equivalent circuit).
- The bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input. They also have the advantage of almost completely eliminating parasitic effects.
- Only the on/off conditions need to be set for operation, making device design easier.

Mechanical data

- Case: SOT-523, molded plastic.
- Mounting position: Any.



Circuit Diagram



Maximum Ratings (at $T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Supply voltage	V_{CC}	50	V
Input voltage	V_{IN}	-10 to +40	V
Output current	I_O	30	mA
Peak collector current	I_{CM}	100	mA
Power dissipation	P_D	150	mW
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

Electrical Characteristics (at TA=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Input voltage	$V_{I(off)}$	$V_{CC} = 5V, I_o = 100\mu A$	0.5			V
	$V_{I(on)}$	$V_o = 0.3V, I_o = 2mA$			3	V
Output voltage	$V_{O(on)}$	$I_o/I_i = 10mA/0.5mA$			0.3	V
Input current	I_i	$V_i = 5V$			0.18	mA
Output current	$I_{O(off)}$	$V_{CC} = 50V, V_i = 0V$			0.5	μA
DC current gain	G_i	$V_o = 5V, I_o = 5mA$	68			
Input resistance	R_1		32.9	47	61.1	k Ω
Resistance ratio	R_2/R_1		0.88	1	1.2	
Transition frequency	f_T	$V_o = 10V, I_o = 5mA, f = 100MHz$		250		MHz

Typical Rating and Characteristic Curves (DTC144EE-HF)

Fig.1 - On Characteristics

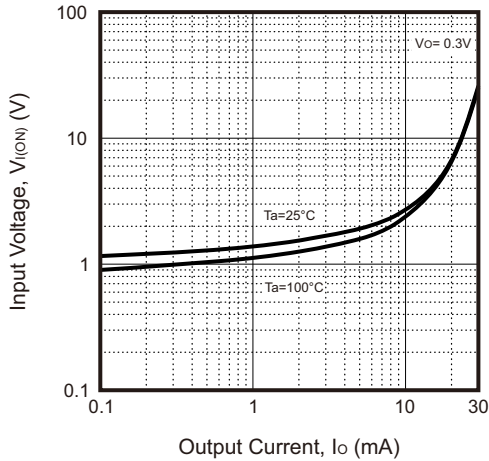


Fig.2 - Off Characteristics

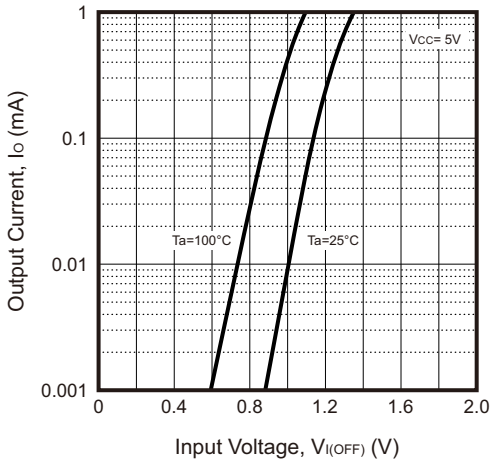


Fig.3 - $V_{O(ON)} - I_o$

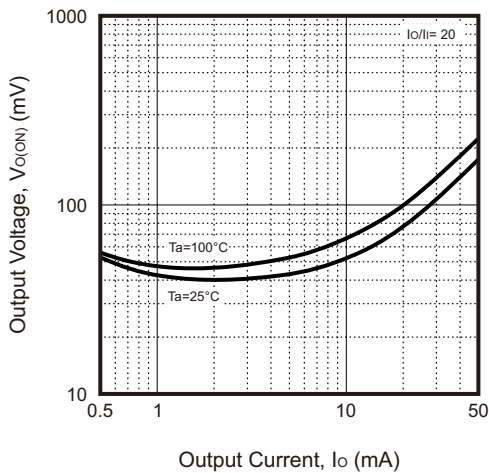


Fig.4 - $G_i - I_o$

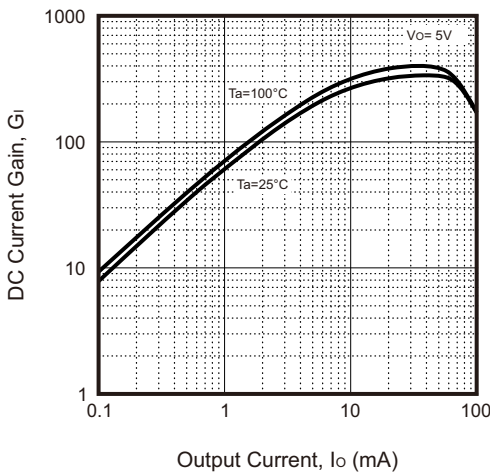


Fig.5 - $C_o - V_R$

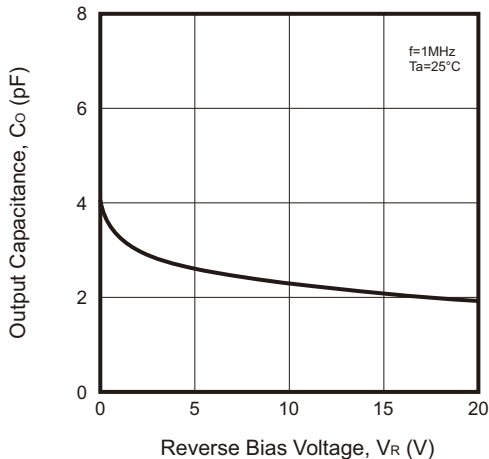
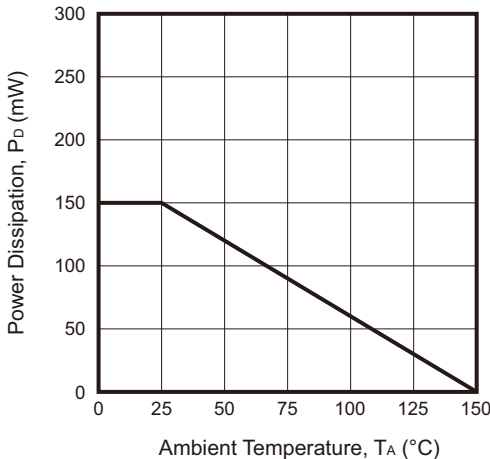
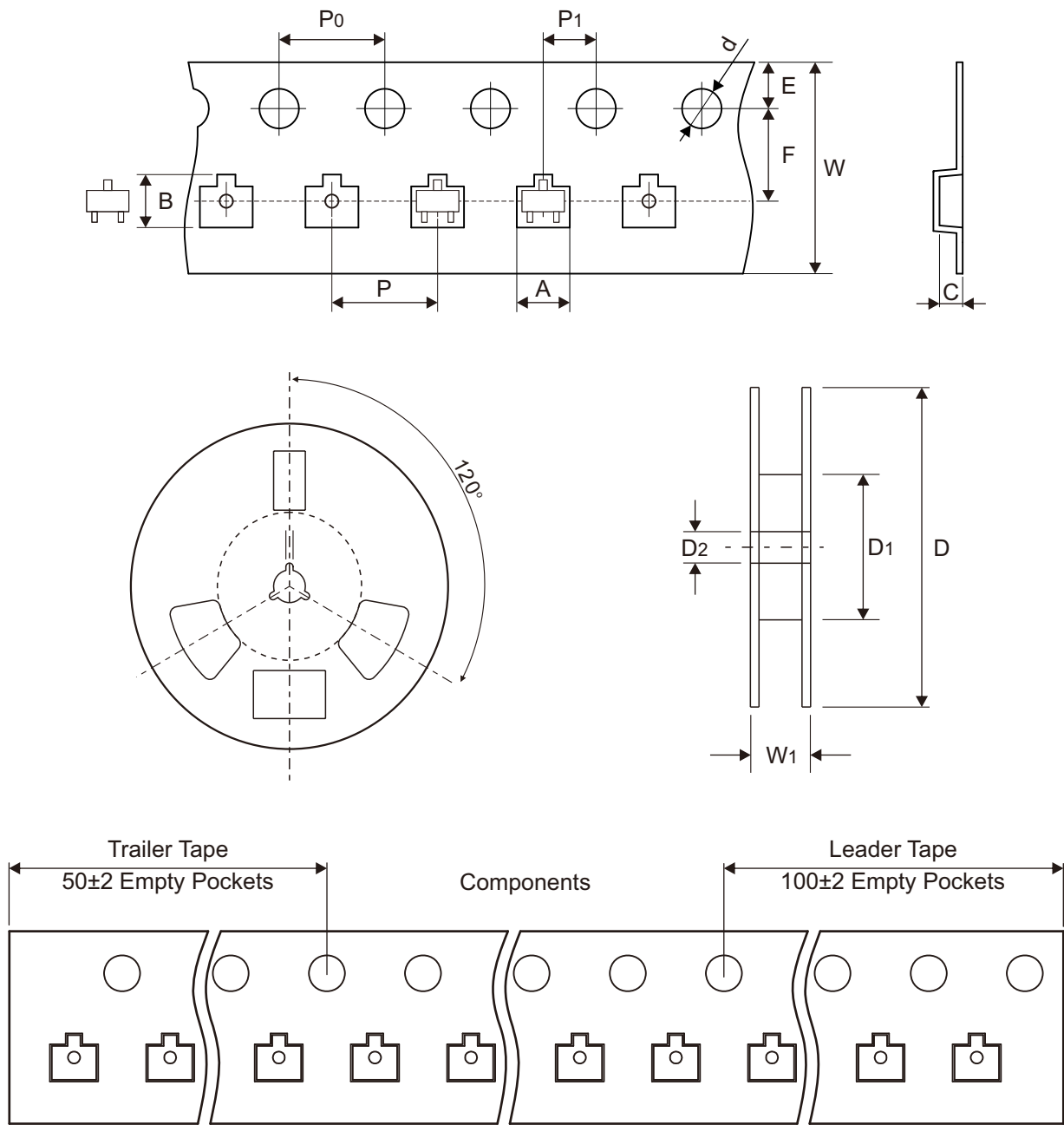


Fig.6 - $P_D - T_A$



Reel Taping Specification

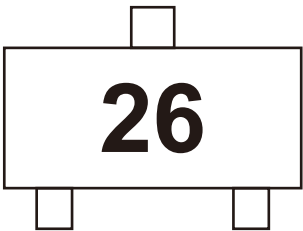


SOT-523	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	1.85 ± 0.05	1.85 ± 0.05	0.875 ± 0.05	1.50 ± 0.10	178.00 ± 2.00	54.40 ± 1.00	13.00 ± 1.00
	(inch)	0.073 ± 0.002	0.073 ± 0.002	0.034 ± 0.002	0.059 ± 0.004	7.008 ± 0.079	2.142 ± 0.039	0.512 ± 0.039

SOT-523	SYMBOL	E	F	P	P0	P1	W	W1
	(mm)	1.75 ± 0.10	3.50 ± 0.10	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.10	8.00 + 0.30 - 0.10	12.30 ± 1.00
	(inch)	0.069 ± 0.004	0.138 ± 0.004	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.004	0.315 + 0.012 - 0.004	0.484 ± 0.039

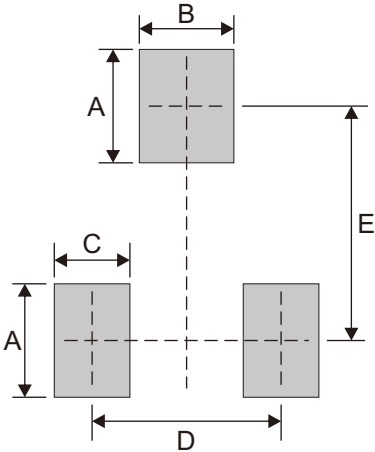
Marking Code

Part Number	Marking Code
DTC144EE-HF	26



Suggested P.C.B. PAD Layout

SIZE	SOT-523	
	(mm)	(inch)
A	0.60	0.024
B	0.50	0.020
C	0.40	0.016
D	1.00	0.039
E	1.24	0.049



Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
SOT-523	3,000	7