

Digital Transistor

DTCXXXTE

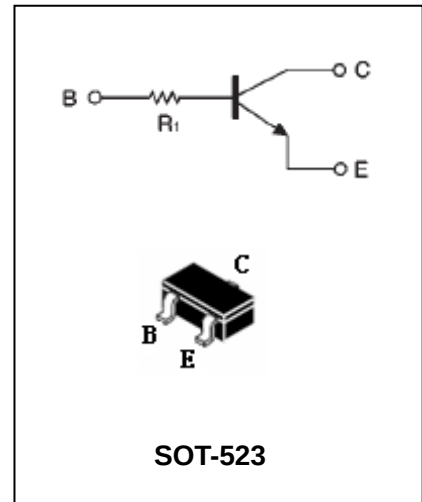
FEATURES

- Epitaxial planar die construction.
- Complementary PNP types available(DTC).
- Built-in biasing resistors, R_1 only.
- Also available in lead free version.
- MSL 1



APPLICATIONS

- The NPN style digital transistor.



ORDERING INFORMATION

Type No.	Marking	Package Code
DTC114TE	04	SOT-523
DTC143TE	03	SOT-523
DTC144TE	06	SOT-523

MAXIMUM RATING @ $T_a=25^{\circ}\text{C}$ unless otherwise specified

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	50	V
V_{CEO}	Collector-Emitter Voltage	50	V
V_{EBO}	Emitter-Base Voltage	5	V
$I_C(\text{Max.})$	Collector Current	100	mA
P_D	Power Dissipation	150	mW
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient Air	625	$^{\circ}\text{C}/\text{W}$
T_j, T_{stg}	Operating and Storage and Temperature Range	-55 to +150	$^{\circ}\text{C}$

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ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-Base breakdown Voltage	BV_{CBO}	$I_C=50\mu A$	50	-	-	V
Collector-Emitter breakdown Voltage	BV_{CEO}	$I_C=1mA$	50	-	-	V
Emitter-Base breakdown Voltage	BV_{EBO}	$I_E=50\mu A$	5	-	-	V
Collector cutoff Current	I_{CBO}	$V_{CB}=50V$	-	-	0.5	μA
Emitter cutoff Current	I_{EBO}	$V_{EB}=4V$	-	-	0.5	μA
Collector-Emitter saturation voltage DTC114TE DTC143TE DTC144TE	$V_{CE(sat)}$	$I_C/I_B=10mA/1mA$ $I_C/I_B=5mA/0.25mA$ $I_C/I_B=5mA/0.5mA$	-	-	0.3	V
DC Current Gain	h_{FE}	$I_C=1mA, V_{CE}=5V$	100	250	600	
Input Resistor DTC143TE DTC114TE DTC144TE	R_1		7 3.29 32.9	10 4.7 47	13 6.11 61.1	k Ω
Input Resistor(R_1)Tolerance	ΔR_1	-	-30		+30	%
Gain-Bandwidth Product	f_T	$V_{CE}=-10V, I_E=-5mA,$ $f=100MHz$	-	250	-	MHz

TYPICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

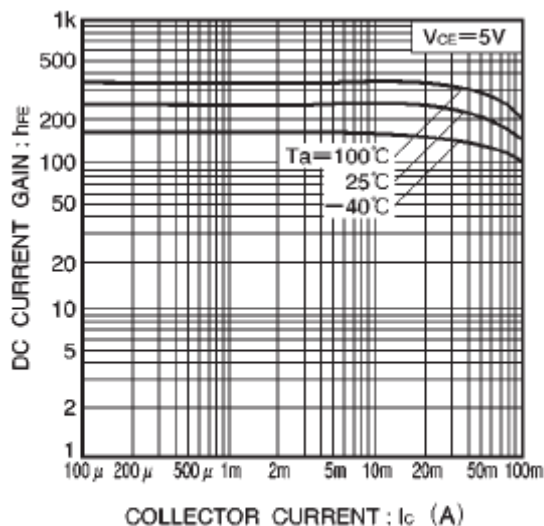


Fig.1 DC current gain vs. collector current

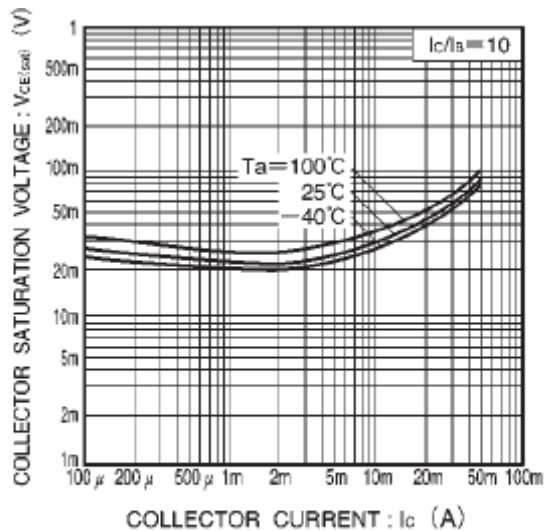


Fig.2 Collector-emitter saturation voltage vs. collector current

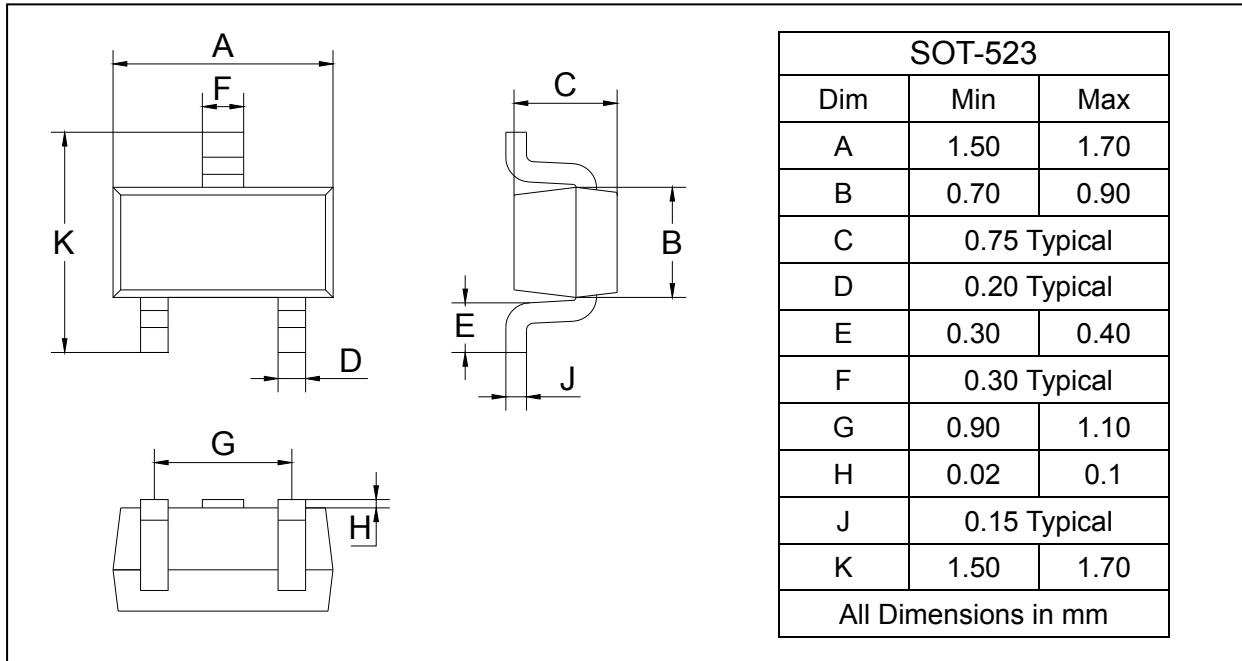
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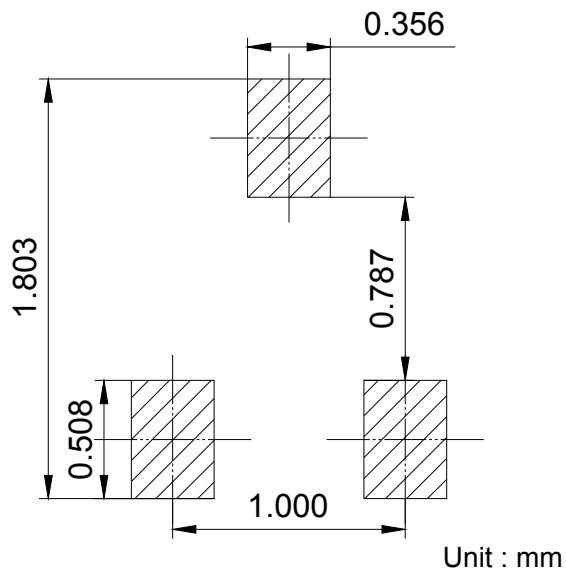
PACKAGE OUTLINE

Plastic surface mounted package

SOT-523



SOLDERING FOOTPRINT



PACKAGE INFORMATION

Device	Package	Shipping
DTC114TE/143TE/144TE	SOT-523	3000/Tape&Reel