

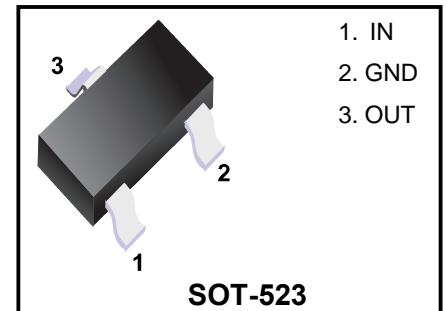
Digital Transistor

Features

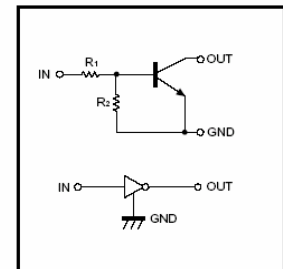
- Epitaxial planar die construction.
- Complementary NPN types available(DTC).
- Built-in biasing resistors, $R_1=R_2$.
- Also available in lead free version.

Applications

- The NPN style digital transistor.



●Equivalent circuit



Marking Code

Type No.	Marking	Package Code
DTC114EE	24	SOT-523
DTC124EE	25	SOT-523
DTC143EE	23	SOT-523
DTC144EE	26	SOT-523

Absolute Maximum Ratings $T_a=25^{\circ}\text{C}$

Symbol	Parameter	Value	Units
V _{CC}	Supply Voltage	50	V
V _{IN}	Input Voltage DTC114EE DTC124EE DTC143EE DTC144EE	-10 to +40 -10 to +40 -10 to +30 -10 to +40	V
I _O	Output Current DTC114EE DTC124EE DTC143EE DTC144EE	50 30 100 30	mA
I _C (Max.)	Output current ALL	100	mA
P _D	Power Dissipation	150	mW
R _{θJA}	Thermal Resistance, Junction to Ambient Air	833	°C/W
T _j , T _{stg}	Operating and Storage and Temperature Range	-55 to +150	°C

Electrical Characteristics Ta=25°C

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Input Voltage	$V_{I(off)}$	$V_{CC}=5V, I_O=100\mu A$	0.5	1.1	-	
Input Voltage	$V_{I(on)}$	$V_O=0.3V, I_O=10mA$ $V_O=0.2V, I_O=5mA$ $V_O=0.3V, I_O=20mA$ $V_O=0.3V, I_O=2mA$	-	1.9	3	V
Output Voltage	$V_{O(on)}$	$I_O/I_I=10mA/0.5mA$,	-	0.1	0.3	V
Input Current	I_I	$V_I=5V$	-	-	0.88 0.36 1.8 0.18	mA
Output Current	$I_{O(off)}$	$V_{CC}=50V, V_I=0V$	-	-	0.5	μA
DC Current Gain	G_I	$V_O=5V, I_O=5mA$ $V_O=5V, I_O=5mA$ $V_O=5V, I_O=10mA$ $V_O=5V, I_O=5mA$	30 56 20 68	-	-	
Input Resistor	$R_1(R_2)$		7 15.4 3.29 32.9	10 22 4.7 47	13 28.6 6.11 61.1	k Ω
Resistance Ratio	R_2/R_1	-	0.8	1	1.2	
Gain-Bandwidth Product	f_T	$V_{CE}=10V, I_E=-5mA$, $f=100MHz$	-	250	-	MHz

Typical Characteristics

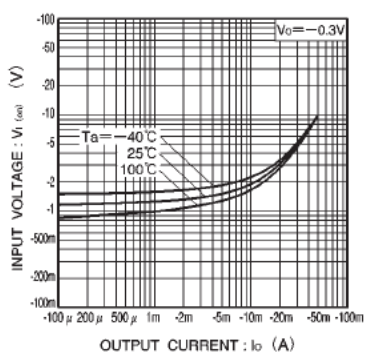


Fig.1 Input voltage vs. output current (ON characteristics)

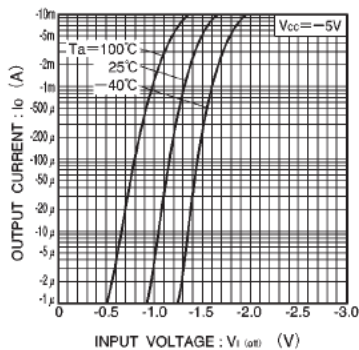


Fig.2 Output current vs. input voltage (OFF characteristics)

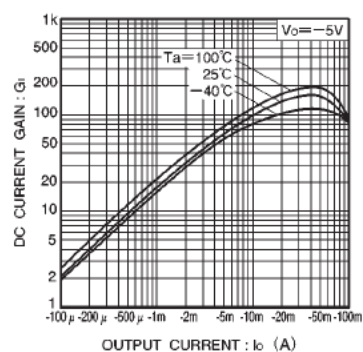


Fig.3 DC current gain vs. output current

Ordering information

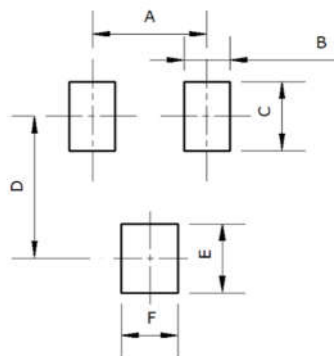
Package	Packing Description	Base Quantity	Packing Quantity
SOT-523	Tape/Reel, 7" reel	3000pcs/Reel	24000PCS/Box 120000PCS/Carton

Package Dimensions

SOT-523

Dim.	Millimeter (mm)		mil	
	Min.	Max.	Min.	Max.
A	1.50	1.70	59	67
B	0.75	0.85	30	33
C	1.45	1.75	57	69
D	0.50TYP		0.020TYP	
E	0.90	1.10	35	43
G	0.00	0.10	0	4
H	0.60	0.80	24	31
J	0.10	0.20	4	8
K	0.15	0.35	6	14
L	0.26	0.46	10	18

The recommended mounting pad size



Millimeter (mm)	
Dim.	TYP
A	1.00
B	0.40
C	0.60
D	1.24
E	0.60
F	0.50

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