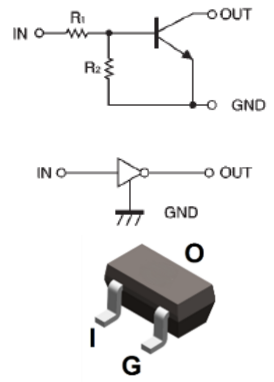
DTC(R1=R2 SERIES)E

Digital Transistor(NPN)

FEATURES

- Epitaxial planar die construction
- Complementary PNP types available(DTA)
- Built-in biasing resistors,R_1=R_2
- Also available in lead free version



SOT-523

APPLICATIONS

- The NPN style digital transistor

ORDERING INFORMATION

Type No.	Marking	Package Code
DTC114EE	24	SOT-523
DTC124EE	25	SOT-523
DTC143EE	23	SOT-523
DTC144EE	26	SOT-523
DTC115EE	29	SOT-523

MAXIMUM RATING @ Ta=25℃ unless otherwise specified

Symbol	Parameter		Value	Units
V_{CC}	Supply Voltage		50	V
V_{IN}	Input Voltage	DTC114EE	-10 to +40	V
		DTC124EE	-10 to +40	
		DTC143EE	-10 to +30	
		DTC144EE	-10 to +40	
		DTC115EE	-10 to +40	
I_O	Output Current	DTC114EE	50	mA
		DTC124EE	30	
		DTC143EE	100	
		DTC144EE	30	
		DTC115EE	100	
I_C(Max.)	Output current	ALL	100	mA
P_D	Power Dissipation		150	mW
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient Air		833	℃/W
T_J,T_{STG}	Operating and Storage and Temperature Range		-55 to +150	℃

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ELECTRICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

Parameter		Symbol	Test conditions	MIN	TYP	MAX	UNIT
Input Voltage		$V_{I(off)}$	V_{CC}=5V,I_O=100μA	0.5	-	-	
Input Voltage	DTC114EE	$V_{I(on)}$	V_O=0.3V,I_O=10mA	-	-	3	V
	DTC124EE		V_O=0.2V,I_O=5mA				
	DTC143EE		V_O=0.3V,I_O=20mA				
	DTC144EE		V_O=0.3V,I_O=2Ma				
	DTC115EE		V_O=0.3V,I_O=1mA				
Output Voltage	DTC114EE	$V_{O(on)}$	I_o/I_I=10mA/0.5mA	-	-	0.3	V
	DTC124EE		I_o/I_I=10mA/0.5mA				
	DTC143EE		I_o/I_I=10mA/0.5mA				
	DTC144EE		I_o/I_I=10mA/0.5mA				
	DTC115EE		I_o/I_I=5mA/0.25mA				
Input Current	DTC114EE	I_I	V_I=5V	-	-	0.88	mA
	DTC124EE					0.36	
	DTC143EE					1.8	
	DTC144EE					0.18	
	DTC115EE					0.15	
Output Current		$I_{O(off)}$	V_{CC}=50V,V_I=0V	-	-	0.5	μA
DC Current Gain	DTC114 EE	G_I	V_O=5V,I_O=5mA	30	-	-	
	DTC124EE		V_O=5V,I_O=5mA	56			
	DTC143EE		V_O=5V,I_O=10mA	20			
	DTC144EE		V_O=5V,I_O=5mA	68			
	DTC115EE		V_O=5V,I_O=5mA	82			
Input Resistor	DTC114EE	$R_1(R_2)$		7	10	13	kΩ
	DTC124EE			15.4	22	28.6	
	DTC143EE			3.29	4.7	6.11	
	DTC144EE			32.9	47	61.1	
	DTC115EE			70	100	130	
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 @ Ta=25℃ unless otherwise specified

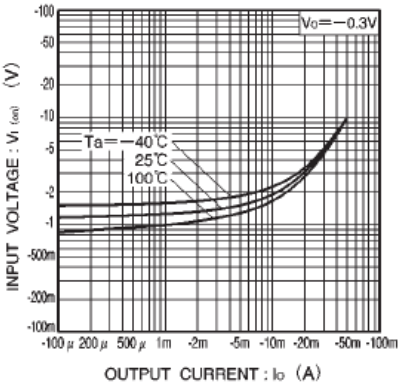

Fig.1 Input voltage vs. output current (ON characteristics)

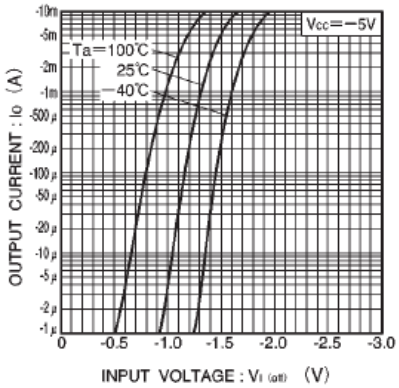

Fig.2 Output current vs. input voltage (OFF characteristics)

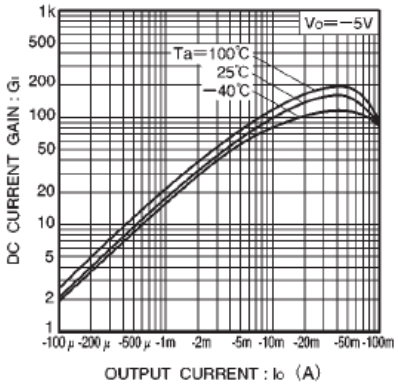

Fig.3 DC current gain vs. output current

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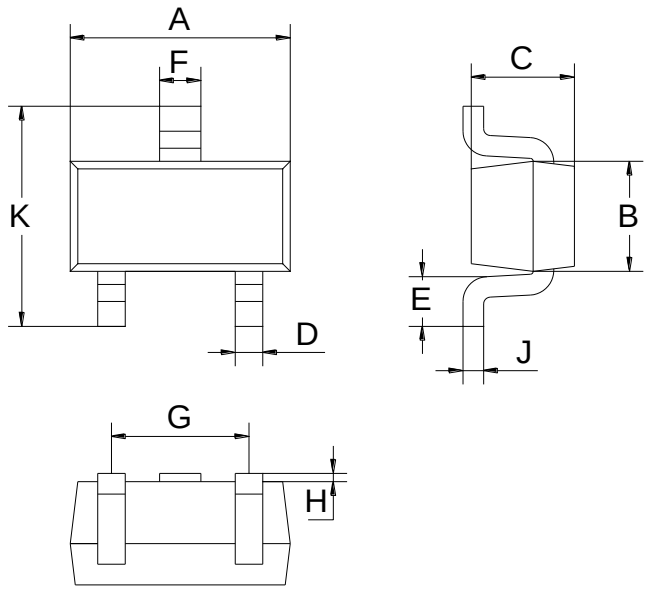
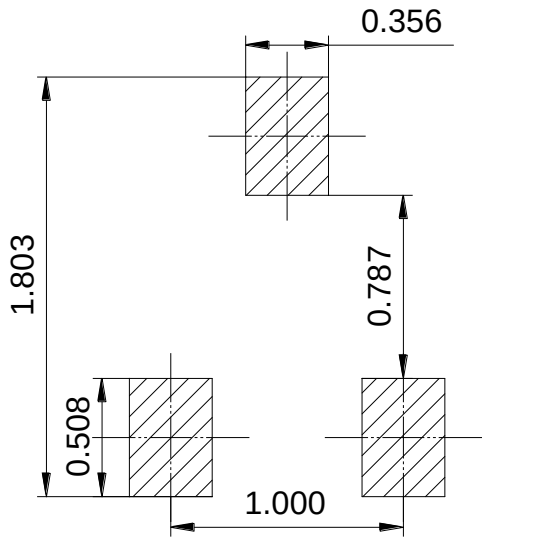
PACKAGE OUTLINE

Plastic surface mounted package SOT-523



SOT-523		
Dim	Min	Max
A	1.50	1.70
B	0.75	0.85
C	0.60	0.80
D	0.15	0.30
E	0.30	0.40
F	0.25	0.40
G	0.90	1.10
H	0.02	0.10
J	0.08	0.18
K	1.45	1.75
All Dimensions in mm		

SOLDERING FOOTPRINT



Unit: mm

PACKAGE INFORMATION

Device	Package	Shipping
DTCXXXEE	SOT-523	3000 pcs / Tape & Reel