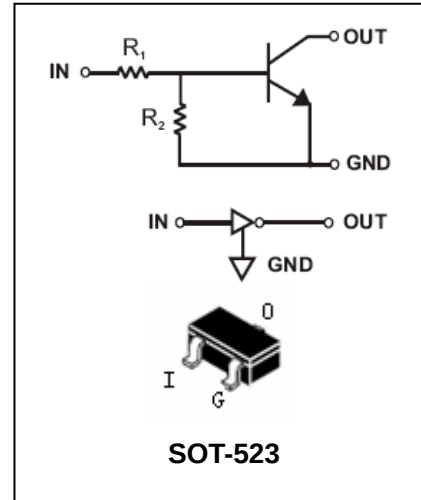


Digital Transistor

DTC(R₁≠R₂ SERIES)E

FEATURES

- Epitaxial planar die construction.
- Complementary PNP types available(DTA).
- Built-in biasing resistors, R₁≠R₂
- Also available in lead free version.



APPLICATIONS

- The NPN style digital transistor.

ORDERING INFORMATION

Type No.	Marking	Package Code
DTC113ZE	E21	SOT-523
DTC114WE	84	SOT-523
DTC114YE	64	SOT-523
DTC123JE	E42	SOT-523
DTC123YE	62	SOT-523
DTC143XE	43	SOT-523
DTC143ZE	E23	SOT-523

MAXIMUM RATING @ Ta=25°C unless otherwise specified

Symbol	Parameter	Value	Units
V _{CC}	Supply Voltage	50	V
V _{IN}	Input Voltage	DTC113ZE -5 to+10 DTC114WE -10 to+30 DTC114YE -6 to +40 DTC123JE -5 to+12 DTC123YE -5 to+12 DTC143XE -7 to+20 DTC143ZE -5 to+30	V
I _O	Output Current	DTC113ZE 100 DTC114WE 100 DTC114YE 70 DTC123JE 100 DTC123YE 100 DTC143XE 100 DTC143ZE 100	mA
I _C (Max.)	Output current	ALL 100	mA
P _D	Power Dissipation	150	mW

Digital Transistor

DTC(R₁≠R₂ SERIES)E

Symbol	Parameter	Value	Units
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 unless otherwise specified

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Input Voltage	DTC113ZE DTC114WE DTC114YE DTC123JE DTC123YE DTC143XE DTC143ZE	V _{I(off)} V _{CC} =5V, I _O =100μA	0.3 0.8 0.3 0.5 0.3 0.3 0.5	-	-	V
Input Voltage	DTC113ZE DTC114WE DTC114YE DTC123JE DTC123YE DTC143XE DTC143ZE	V _{I(on)} V _O =0.3V, I _O =20mA V _O =0.3V, I _O =2mA V _O =0.3V, I _O =1mA V _O =0.3V, I _O =5mA V _O =0.3V, I _O =20mA V _O =0.3V, I _O =20mA V _O =0.3V, I _O =5mA	-	-	3.0 3.0 1.4 1.1 3.0 2.5 1.3	V
Output Voltage	DTC123JE DTC143ZE DTC114YE ALL Others	V _{O(on)} I _O /I _I =5mA/0.25mA I _O /I _I =10mA/0.5mA	-	0.1	0.3	V
Input Current	DTC113ZE DTC114WE DTC114YE DTC123JE DTC123YE DTC143XE DTC143ZE	I _I V _I =5V	-	-	7.2 0.88 0.88 3.6 3.8 1.8 1.8	mA
Output Current		I _{O(off)} V _{CC} =50V, V _I =0V	-	-	0.5	μA
DC Current Gain	DTC113ZE DTC114WE DTC114YE DTC123JE DTC123YE DTC143XE DTC143ZE	G _I V _O =5V, I _O =5mA V _O =5V, I _O =10mA V _O =5V, I _O =5mA V _O =5V, I _O =10mA V _O =5V, I _O =10mA V _O =5V, I _O =10mA V _O =5V, I _O =10mA	33 24 68 80 33 30 80	-	-	

Digital Transistor

DTC(R₁≠R₂ SERIES)E

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Input Resistor DTC113ZE DTC114WE DTC114YE DTC123JE DTC123YE DTC143XE DTC143ZE	R ₁ (R ₂)			1(10) 10(4.7) 10(47) 2.2(47) 2.2(10) 4.7(10) 4.7(47)		kΩ
Input Resistor (R ₁) Tolerance	ΔR ₁	-	-30		+30	%
Resistance Ratio Tolerance	ΔR ₂ /R ₁	-	-20		+20	%
Gain-Bandwidth Product	f _T	V _{CE} =10V, I _E =5mA, f=100MHz	-	250	-	MHz

TYPICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

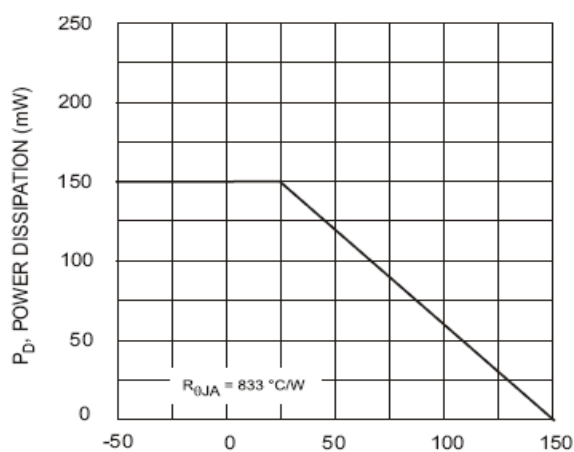


Fig. 1 Derating Curve

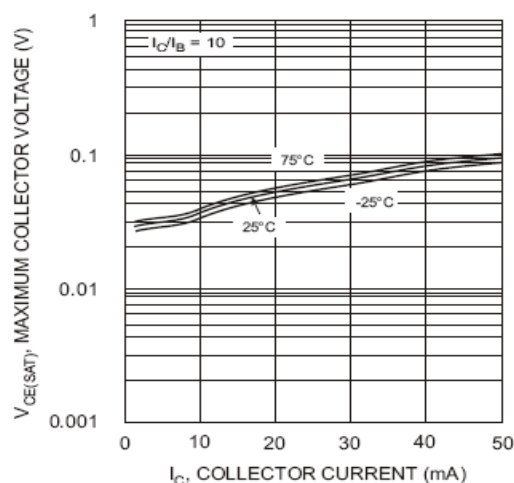


Fig. 2 V_{CE(SAT)} vs. I_C

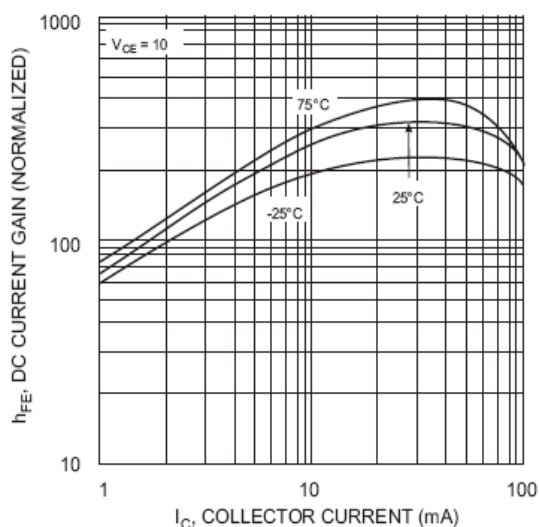


Fig. 3 DC Current Gain

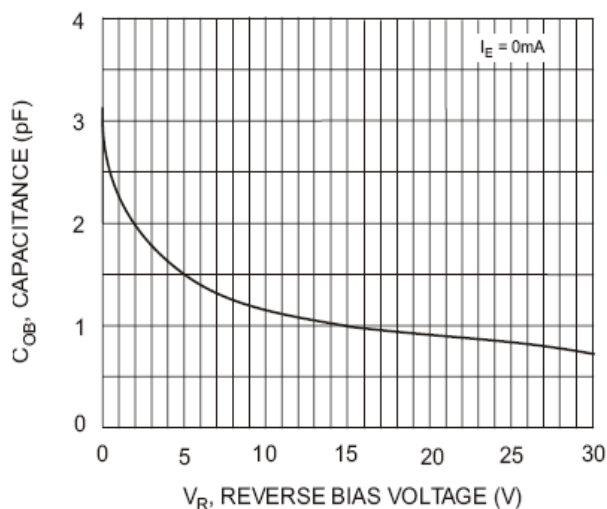


Fig. 4 Output Capacitance

Digital Transistor

DTC(R₁≠R₂ SERIES)E

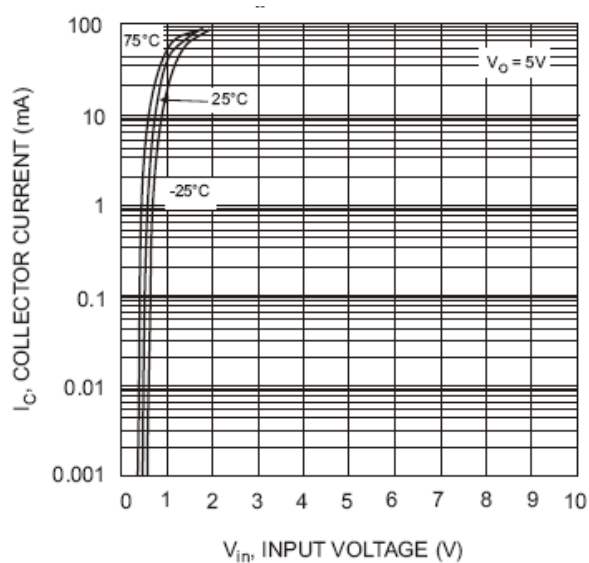


Fig. 5 Collector Current Vs. Input Voltage

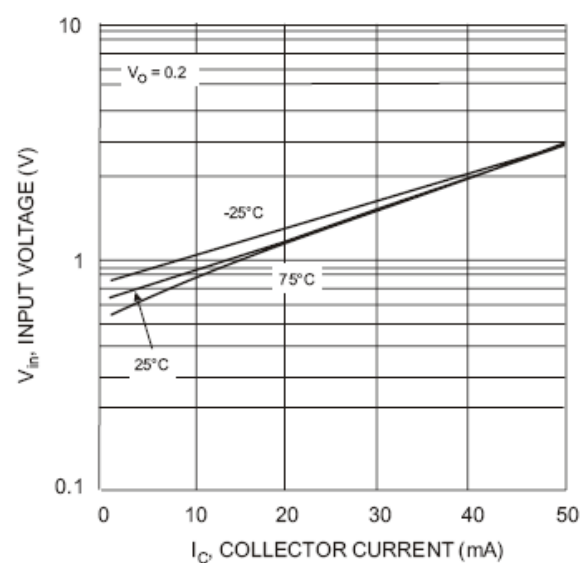
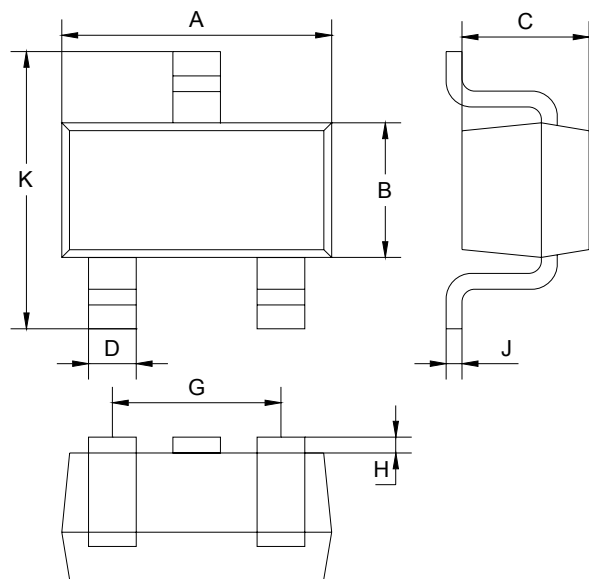


Fig. 6 Input Voltage vs. Collector Current

PACKAGE OUTLINE

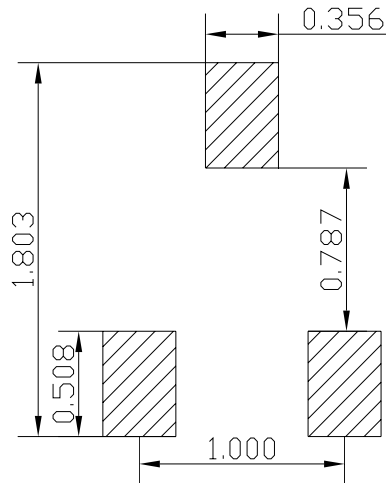
Plastic surface mounted package

SOT-523



SOT-523		
Dim	Min	Max
A	1.5	1.7
B	0.75	0.85
C	0.6	0.8
D	0.15	0.3
G	0.9	1.1
H	0.02	0.1
J	0.1Typical	
K	1.45	1.75
All Dimensions in mm		

Digital Transistor**DTC(R₁≠R₂ SERIES)E**

SOLDERING FOOTPRINT

Unit : mm

PACKAGE INFORMATION

Device	Package	Shipping
DTCXXE	SOT-523	3000/Tape&Reel