

Features

- Low Collector-Emitter Saturation Voltage
- High Current Capability
- Halogen Free. "Green" Device (Note 1)
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings @ 25°C Unless Otherwise Specified

- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 416.7°C/W Junction to Ambient

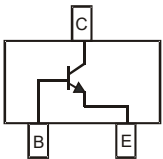
Parameter	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	40	V
Collector-Emitter Voltage	V_{CEO}	40	V
Emitter-Base Voltage	V_{EBO}	5	V
Continuous Collector Current	I_C	2	A
Power Dissipation	P_D	300	mW

Note:

1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

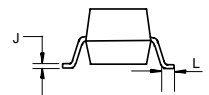
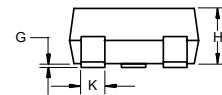
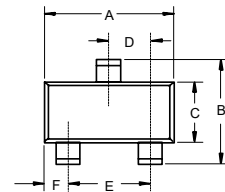
Marking: ZE

Internal Structure



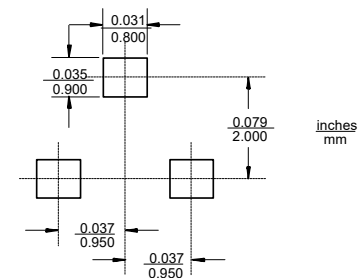
**NPN
Low $V_{CE(sat)}$
Transistor**

SOT-23



DIMENSIONS					NOTE
DIM	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	0.110	0.120	2.80	3.04	
B	0.083	0.104	2.10	2.64	
C	0.047	0.055	1.20	1.40	
D	0.034	0.041	0.85	1.05	
E	0.067	0.083	1.70	2.10	
F	0.018	0.024	0.45	0.60	
G	0.0004	0.006	0.01	0.15	
H	0.035	0.043	0.90	1.10	
J	0.003	0.007	0.08	0.18	
K	0.014	0.020	0.35	0.51	
L	0.007	0.020	0.20	0.50	

Suggested Solder Pad Layout



Electrical Characteristics @ T_A=25°C Unless Otherwise Specified

Parameter	Symbol	Min	Typ	Max	Units	Conditions
Collector-Base Breakdown Voltage	V _{(BR)CBO}	40			V	I _C =100μA, I _E =0
Collector-Emitter Breakdown Voltage	V _{(BR)CEO}	40			V	I _C =1mA, I _B =0
Emitter-Base Breakdown Voltage	V _{(BR)EBO}	5			V	I _E =100μA, I _C =0
Collector Cutoff Current	I _{CBO}			100	nA	V _{CB} =30V, I _E =0
Emitter Cutoff Current	I _{EBO}			100	nA	V _{EB} =4V, I _C =0
DC Current Gain	h _{FE}	350				V _{CE} =2V, I _C =100mA
		300				V _{CE} =2V, I _C =500mA
		300				V _{CE} =2V, I _C =1A
		150				V _{CE} =2V, I _C =2A
Collector-Emitter Saturation Voltage	V _{CE(sat)}			70	mV	I _C =100mA, I _B =1mA
				100	mV	I _C =500mA, I _B =50mA
				180	mV	I _C =750mA, I _B =15mA
				180	mV	I _C =1A, I _B =50mA
				320	mV	I _C =2A, I _B =200mA
Equivalent On-Resistance	R _{CE(sat)}			200	mΩ	I _C =500mA, I _B =50mA
Base-Emitter Saturation Voltage	V _{BE(sat)}			1.1	V	I _C =2A, I _B =200mA
Base-Emitter Turn-On Voltage	V _{BE(on)}			0.75	V	V _{CE} =2V, I _C =100mA
Transition Frequency	f _T	100			MHz	V _{CE} =10V, I _C =100mA, f=100MHz
Collector-Base Capacitance	C _{cb}			20	pF	V _{CB} =10V, I _E =0, f=1MHz

Curve Characteristics

Fig. 1 - Static Characteristics

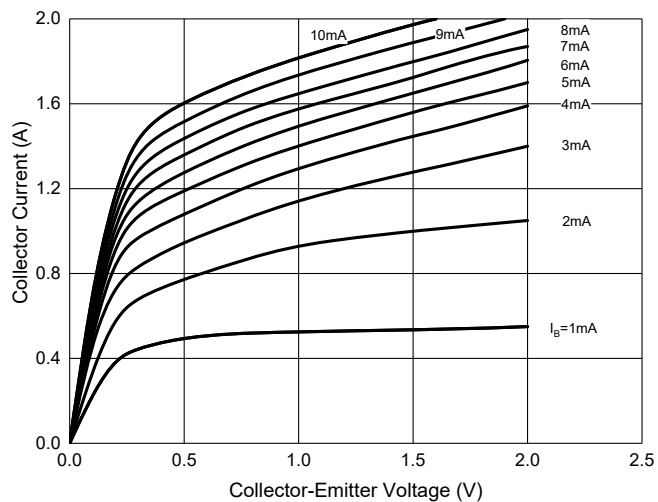
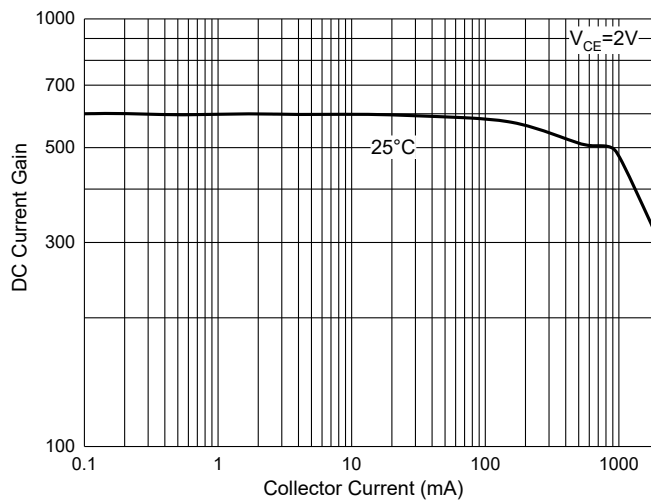


Fig. 2 - DC Current Gain Characteristics



Curve Characteristics

Fig. 3 - Collector-Emitter Saturation Voltage Characteristics

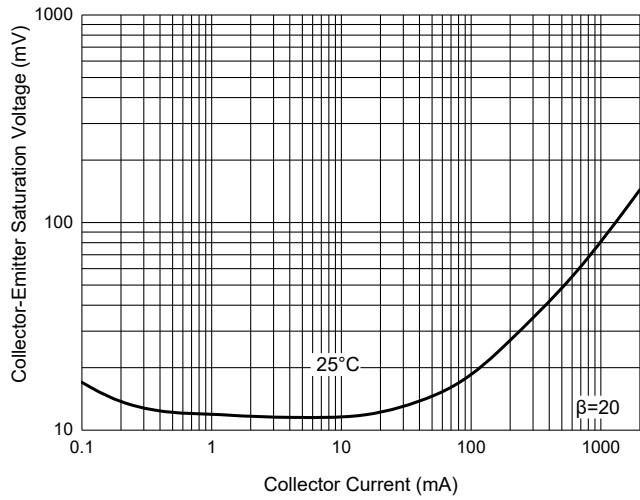


Fig. 4 - Base-Emitter Saturation Voltage Characteristics

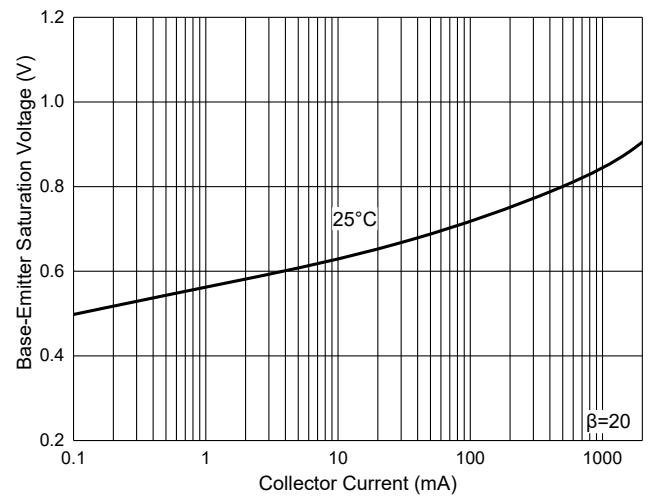


Fig. 5 - Base-Emitter on Voltage Characteristics

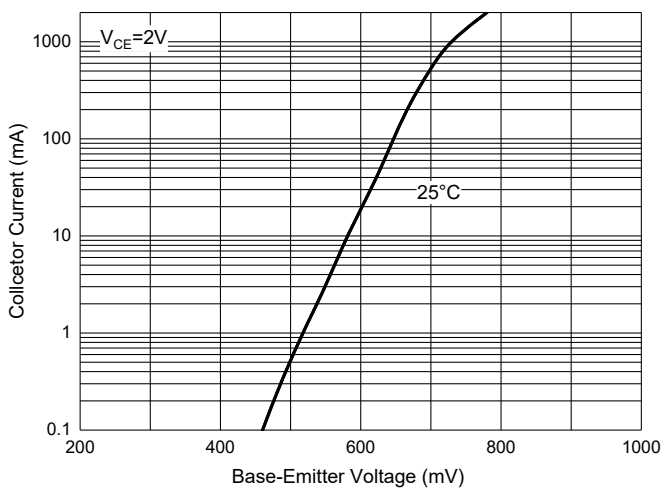


Fig. 6 - $C_{ob}/C_{ib} - V_{CB}/V_{EB}$

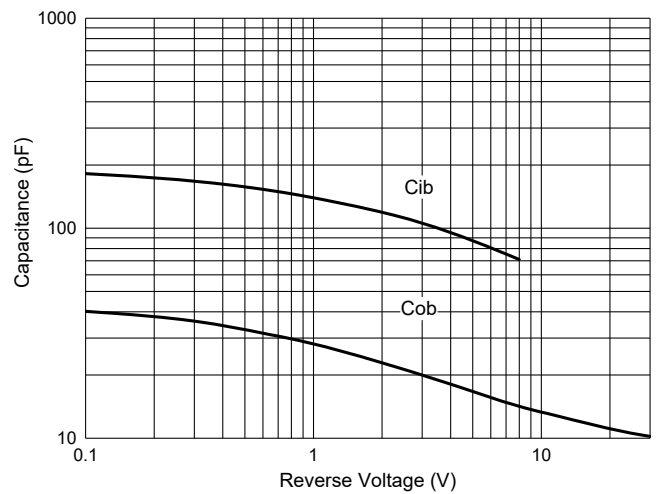
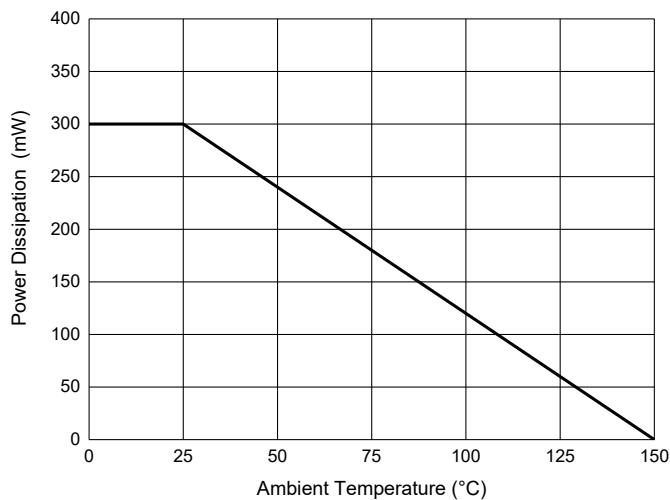


Fig. 7 - Power Derating Curve



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 3Kpcs/Reel

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