

Features

- Built-In Biasing Resistors
- Epitaxial Planar Die Construction
- 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)

**NPN
Digital Transistor**

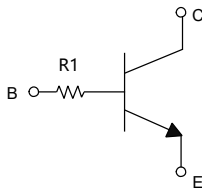
Maximum Ratings @ 25°C Unless Otherwise Specified

Parameter	Symbol	Min	Typ	Max	Unit
Collector-Emitter Voltage	V_{CEO}	50	---	---	V
Collector-Base Voltage	V_{CBO}	50	---	---	V
Emitter-Base Voltage	V_{EBO}	5	---	---	V
Collector Current	I_C	---	100	---	mA
Power Dissipation	P_D	---	200	---	mW
Junction Temperature	T_J	---	---	150	°C
Storage Temperature Range	T_{STG}	-55	---	150	°C

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

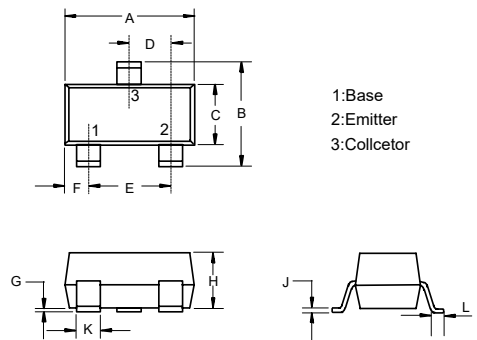
Device Marking: 03

Internal Structure



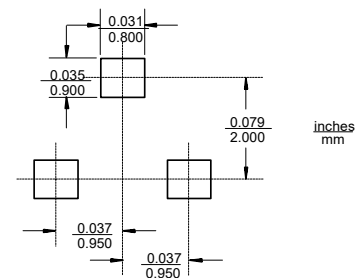
B:Base
C:Collector
E:Emitter

SOT-23



DIM	INCHES		MM		NOTE
	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	0.012	0.020	0.30	0.51	
L	0.007	0.020	0.20	0.50	

Suggested Solder Pad Layout



Electrical Characteristics @ 25° C Unless Otherwise Specified

Parameter	Symbol	Min	Typ	Max	Units	Conditions
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	50	---	---	V	$I_C=50\mu A$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	50	---	---	V	$I_C=1mA$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5	---	---	V	$I_E=50\mu A$
Collector Cut-off Current	I_{CBO}	---	---	0.5	μA	$V_{CB}=50V$
Emitter Cut-off Current	I_{EBO}	---	---	0.5	μA	$V_{EB}=4V$
DC Current Transfer Ratio	h_{FE}	100	---	600	---	$I_C=1mA, V_{CE}=5V$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	---	---	0.3	V	$I_C=5mA, I_B=0.25mA$
Input Resistance	R_1	3.29	4.7	6.11	K Ω	
Transition Frequency	f_T	---	250	---	MHz	$V_{CE}=10.0V, I_E=-5mA, f=100MHz$

Curve Characteristics

Fig. 1 - Static Characteristics

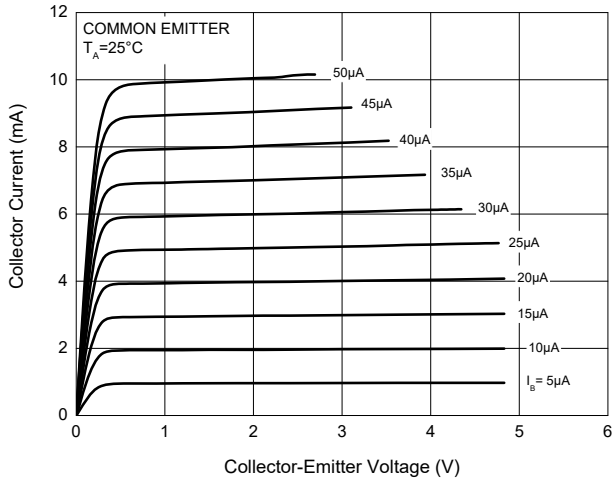


Fig. 2 - DC Current Gain Characteristics

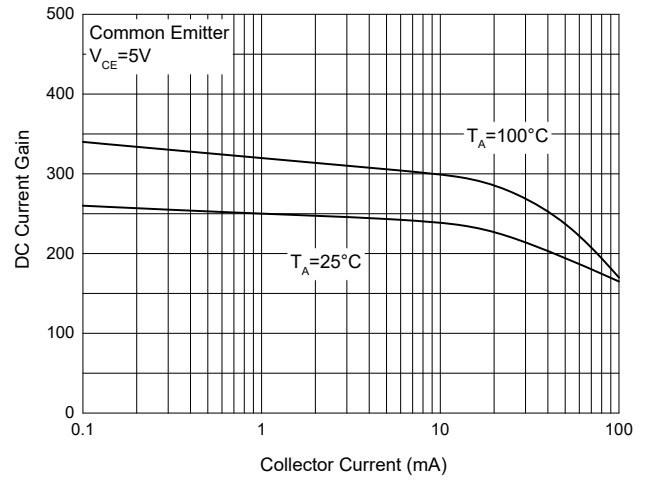


Fig. 3 - Collector-Emitter Saturation Voltage Characteristics

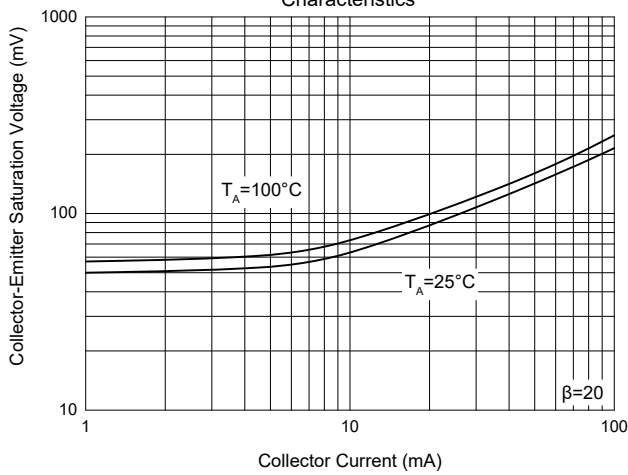
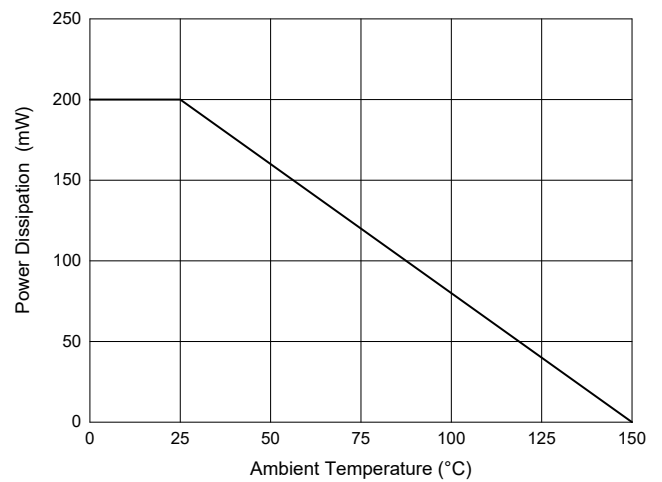


Fig. 4 - Power Derating Curve



Ordering Information

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

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