Features

- Low Collector to Emitter Saturation Voltage
- Excellent Linearity of DC Forward Current Gain
- 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 General Purpose Amplifier

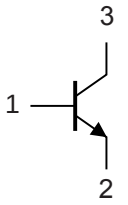
Maximum Ratings @ 25°C Unless Otherwise Specified

- Operating Junction Temperature Range: -55℃ to +125℃
- Storage Temperature Range: -55℃ to +125℃
- Thermal Resistance: 667℃/W Junction to Ambient

Parameter	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	50	V
Collector-Emitter Voltage	V_{CEO}	50	V
Emitter-Base Voltage	V_{EBO}	6	V
Continuous Collector Current	I_C	200	mA
Power Dissipation	P_D	150	mW

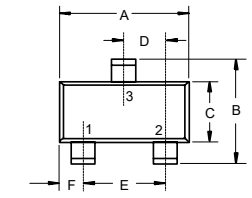
Note: 1. Halogen free "Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

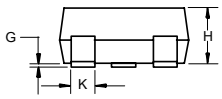
Internal Structure

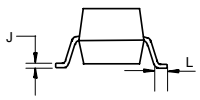


1.BASE
2.EMITTER
3.COLLECTOR

SOT-23

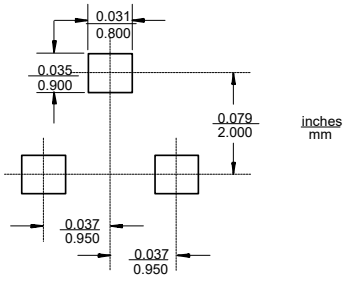






DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.110	0.120	2.80	3.04	
B	0.083	0.104	2.10	2.64	
C	0.047	0.055	1.20	1.40	
D	0.034	0.041	0.85	1.05	
E	0.067	0.083	1.70	2.10	
F	0.018	0.024	0.45	0.60	
G	0.0004	0.006	0.01	0.15	
H	0.035	0.043	0.90	1.10	
J	0.003	0.007	0.08	0.18	
K	0.012	0.020	0.30	0.51	
L	0.007	0.020	0.20	0.50	

Suggested Solder Pad Layout



Electrical Characteristics @ T_A=25°C Unless Otherwise Specified

Parameter	Symbol	Min	Typ	Max	Units	Conditions
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	50			V	I_C=100μA, I_E=0
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	50			V	I_C=100μA, I_B=0
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	6			V	I_E=100μA, I_C=0
Collector-Base Cutoff Current	I_{CBO}			0.1	μA	V_{CB}=50V, I_E=0
Emitter-Base Cutoff Current	I_{EBO}			0.1	μA	V_{EB}=6V, I_C=0
DC Current Gain	$h_{FE(1)}$	150		800		V_{CE}=6V, I_C=1mA
	$h_{FE(2)}$	50				V_{CE}=6V, I_C=0.1mA
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			0.3	V	I_C=100mA, I_B=10mA
Base-Emitter Saturation Voltage	$V_{BE(sat)}$			1.0	V	I_C=100mA, I_B=10mA
Transition Frequency	f_T	180			MHz	V_{CE}=6V,I_C=10mA
Collector Output Capacitance	C_{ob}			4	pF	V_{CB}=6V,I_E=0,f=1MHz
Noise Figure	N_F			15	dB	V_{CE}=6V,I_E=-0.1mA,f=1KHz,R_g=2KΩ

Classification of $h_{FE(1)}$

Rank	E	F	G
Range	150-300	250-500	400-800
Marking	LE	LF	LG

Curve Characteristics

Fig. 1 - Static Characteristics

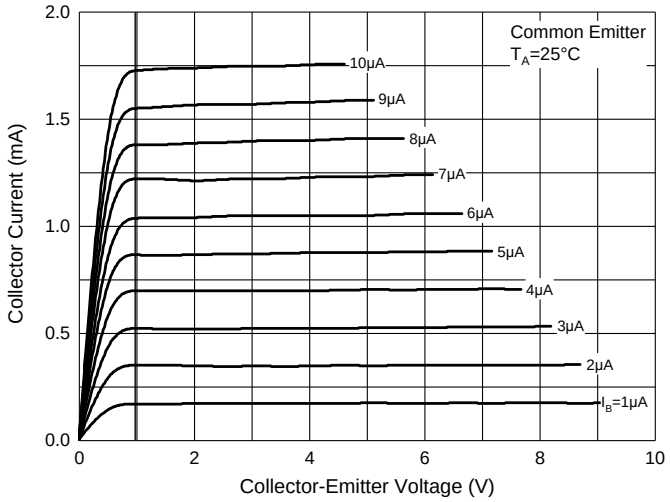


Fig. 2 - DC Current Gain Characteristics

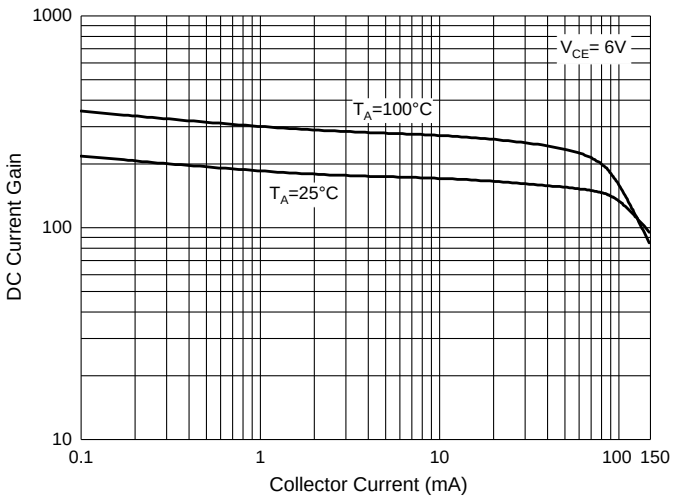


Fig. 3 - Base-Emitter Saturation Voltage Characteristics

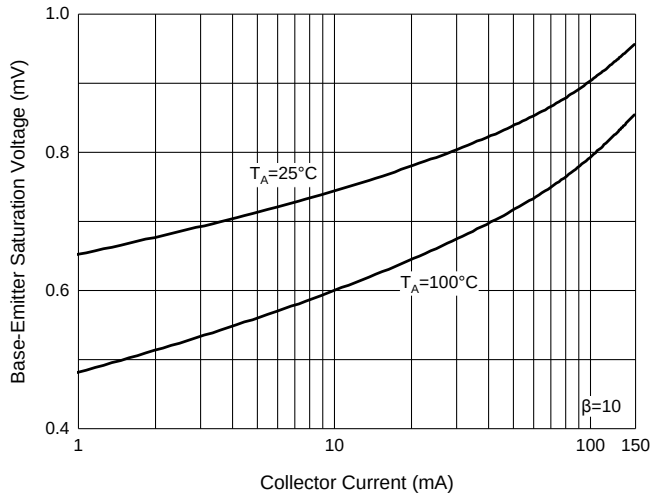


Fig. 4 - Collector-Emitter Saturation Voltage Characteristics

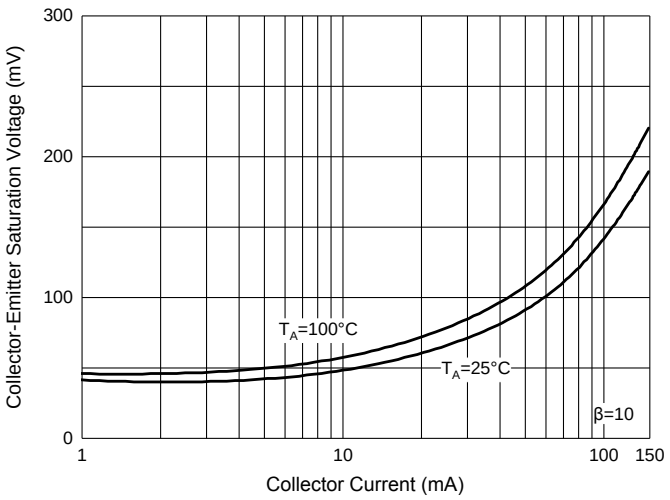
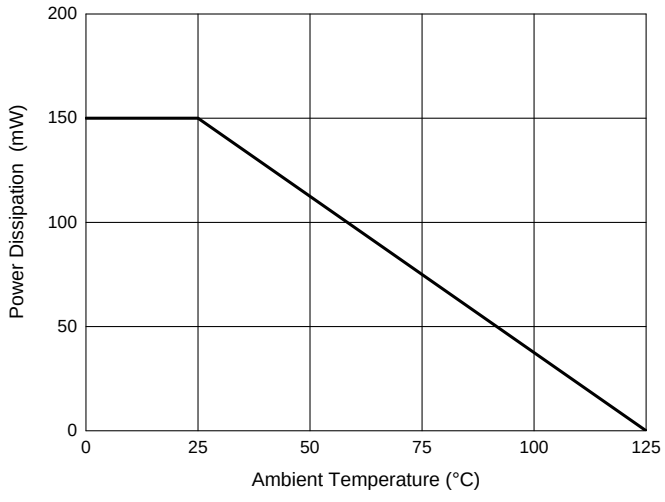


Fig. 5 - Power Derating Curve



Ordering Information

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