

**Features**

- 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  
Plastic Encapsulate  
Transistors**

**Maximum Ratings @ 25°C Unless Otherwise Specified**

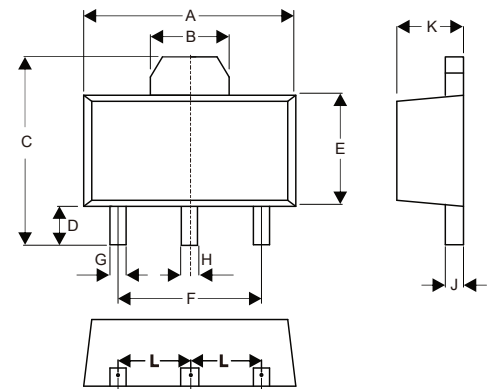
Parameter	Symbol	Rating	Unit
Collector-Base Voltage	$V_{CBO}$	180	V
Collector-Emitter Voltage	$V_{CEO}$	160	V
Emitter-Base Voltage	$V_{EBO}$	6	V
Collector Current	$I_C$	600	mA
Power Dissipation	$P_D$	500	mW

**Thermal characteristics**

Parameter	Symbol	Rating	Unit
Junction Temperature Range	$T_J$	-55~+150	°C
Storage Temperature Range	$T_{STG}$	-55~+150	°C
Thermal Resistance from Junction to Ambient	$R_{th(J-A)}$	250	°C/W

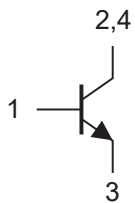
Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

**SOT-89**



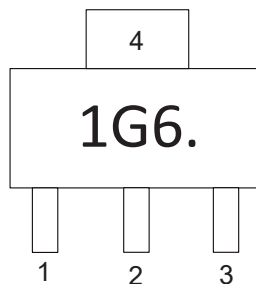
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.169	0.185	4.30	4.70	
B	0.061		1.55		TYP.
C	0.154	0.171	3.91	4.35	
D	0.031	0.047	0.80	1.20	
E	0.089	0.104	2.25	2.65	
F	0.118		3.00		TYP.
G	0.013	0.020	0.33	0.52	
H	0.015	0.021	0.38	0.53	
J	0.014	0.017	0.35	0.44	
K	0.055	0.063	1.40	1.60	
L	0.059		1.50		TYP.

**Internal Structure**

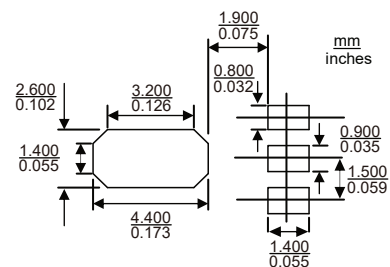


1.BASE  
2,4.COLLECTOR  
3.EMITTER

**Marking Code**



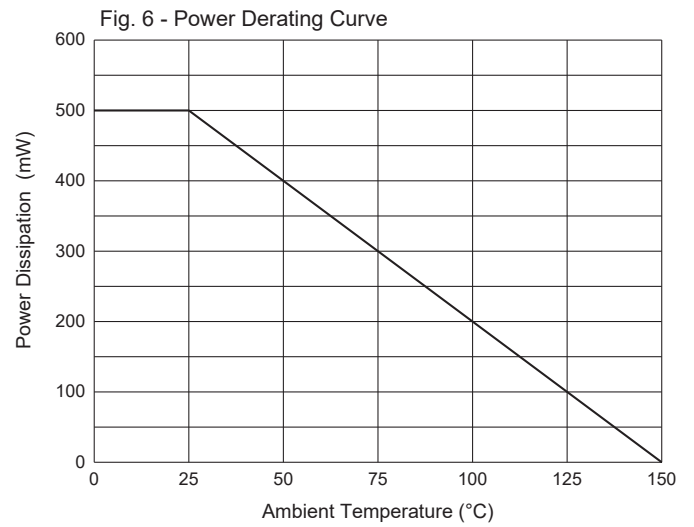
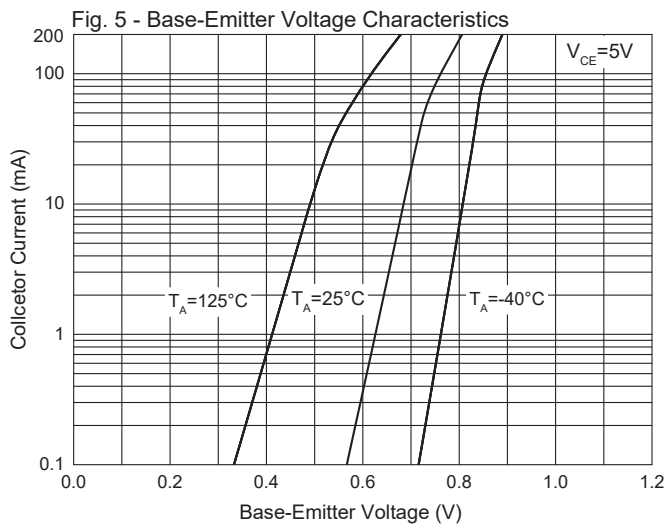
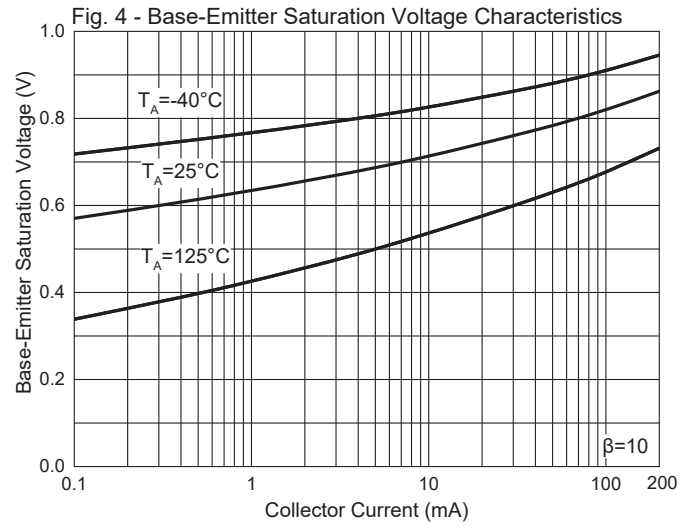
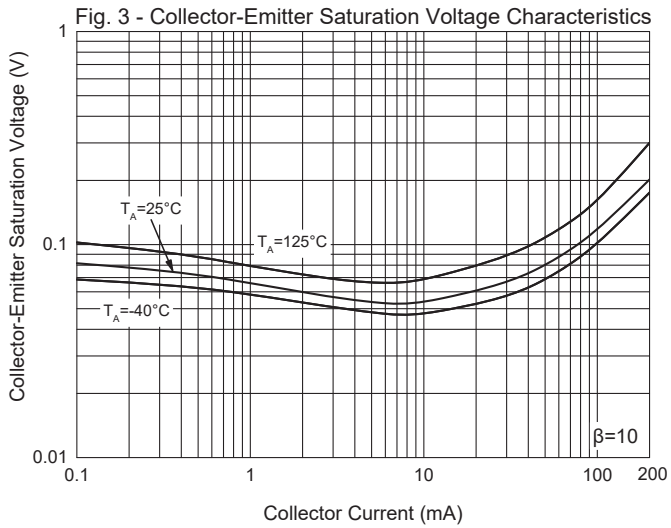
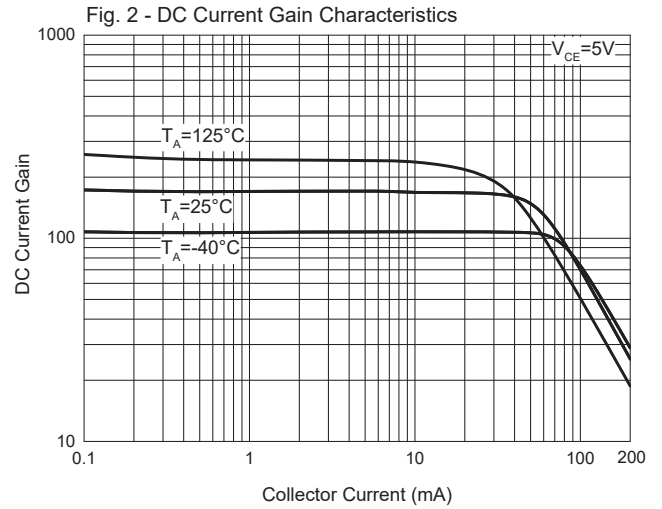
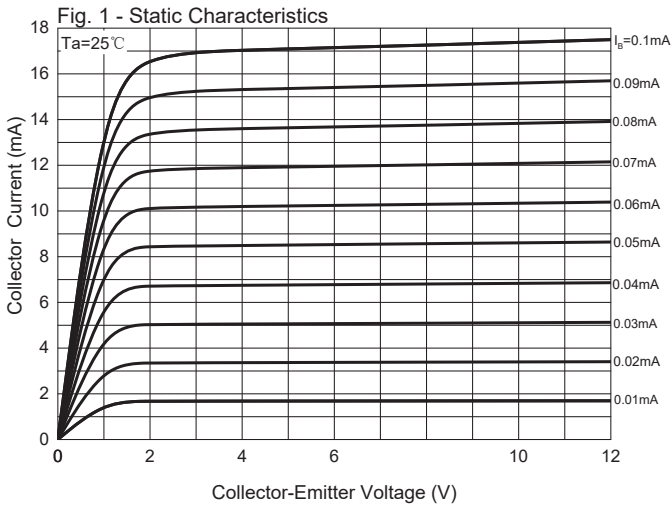
**Suggested Solder Pad Layout**



**Electrical Characteristics @ 25°C Unless Otherwise Specified**

Parameter	Symbol	Min	Typ	Max	Units	Conditions
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	180			V	$I_C=100\mu A, I_E=0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	160			V	$I_C=1mA, I_B=0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	6			V	$I_E=10\mu A, I_C=0$
Collector-Base Cutoff Current	$I_{CBO}$			50	nA	$V_{CB}=120V, I_E=0$
Emitter-Base Cutoff Current	$I_{EBO}$			50	nA	$V_{EB}=5V, I_C=0$
DC Current Gain	$h_{FE(1)}$	80				$V_{CE}=5V, I_C=1mA$
	$h_{FE(2)}$	100		300		$V_{CE}=5V, I_C=10mA$
	$h_{FE(3)}$	30				$V_{CE}=5V, I_C=50mA$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			0.15	V	$I_C=10mA, I_B=1mA$
				0.2	V	$I_C=50mA, I_B=5mA$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$			1	V	$I_C=10mA, I_B=1mA$
				1	V	$I_C=50mA, I_B=5mA$
Transition Frequency	$f_T$	100			MHz	$V_{CE}=10V, I_C=10mA, f=100MHz$
Output Capacitance	$C_{ob}$			6	pF	$V_{CB}=5V, I_E=0, f=1MHz$
Noise Figure	NF			8	dB	$V_{CE}=5V, I_C=200\mu A, R_g=10\Omega$ $f=10Hz$ to $15.7KHz$

**Curve Characteristics**



## Ordering Information

Device	Packing
Part Number-TP	Tape&Reel:1Kpcs/Reel

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