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)

Maximum Ratings @ 25°C Unless Otherwise Specified

- Operating Junction Temperature Range: -55℃ to +150℃
- Storage Temperature Range: -55℃ to +150℃
- Thermal Resistance: 250℃/W Junction to Ambient

Parameter		Symbol	Rating	Unit
Collector-Base Voltage		V_{CBO}	100	V
Collector-Emitter Voltage		V_{CEO}	80	V
Emitter-Base Voltage		V_{EBO}	5	V
Collector Current	DC	I_C	1	A
	Pulse(2)		2	
Power Dissipation(3)	DC	P_D	0.5	W
	Pulse(2)		2	

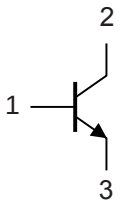
Note: 1. Halogen free "Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

2. Pulse Width=20ms, Duty Cycle=1/2.

3. Mounted on a 40x40x0.7mm Ceramic Board.

Marking: DF

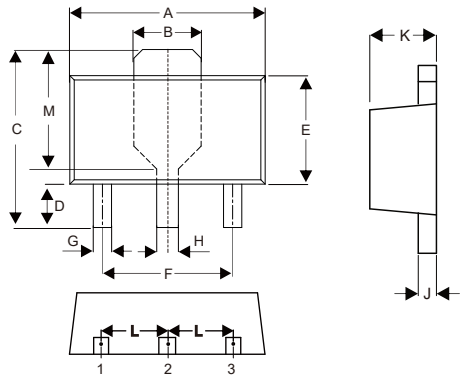
Internal Structure



1.BASE
2.COLLECTOR
3.EMITTER

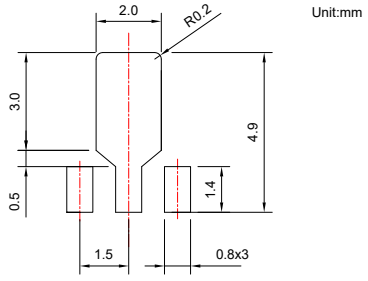
NPN Silicon Power Transistors

SOT-89



DIMENSIONS					
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.
M	0.108		2.75		TYP.

Suggested Solder Pad Layout



Electrical Characteristics @ T_A=25°C Unless Otherwise Specified

Parameter	Symbol	Min	Typ	Max	Units	Conditions
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	100			V	I_C=50μA, I_E=0
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	80			V	I_C=1mA, I_B=0
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5			V	I_E=50μA, I_C=0
Collector Cutoff Current	I_{CBO}			1	μA	V_{CB}=80V, I_E=0
Emitter Cutoff Current	I_{EBO}			1	μA	V_{EB}=4V, I_C=0
DC Current Gain	h_{FE}	82		390		V_{CE}=3V, I_C=0.5A
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		0.15	0.4	V	I_C=500mA, I_B=20mA
Transition Frequency	f_T		100		MHz	V_{CE}=10V, I_C=50mA, f=100MHz
Output Capacitance	C_{ob}		20		pF	V_{CB}=10V, I_E=0,f=1MHz

Classification of h_{FE}

Rank	P	Q	R
Range	82-180	120-270	180-390

Curve Characteristics

Fig. 1 - Static Characteristics

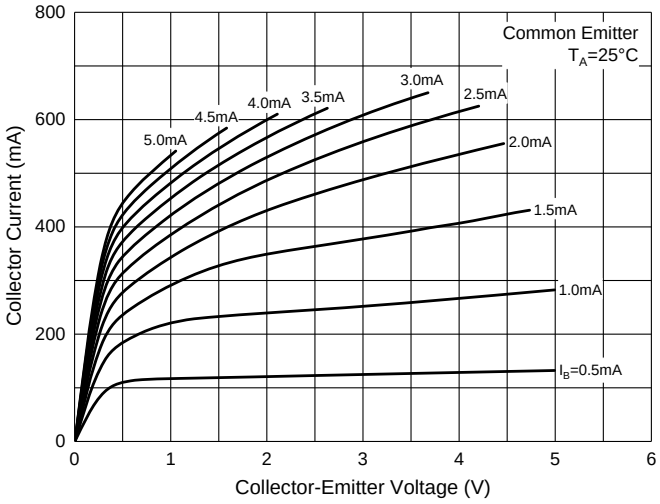


Fig. 2 - DC Current Gain Characteristics

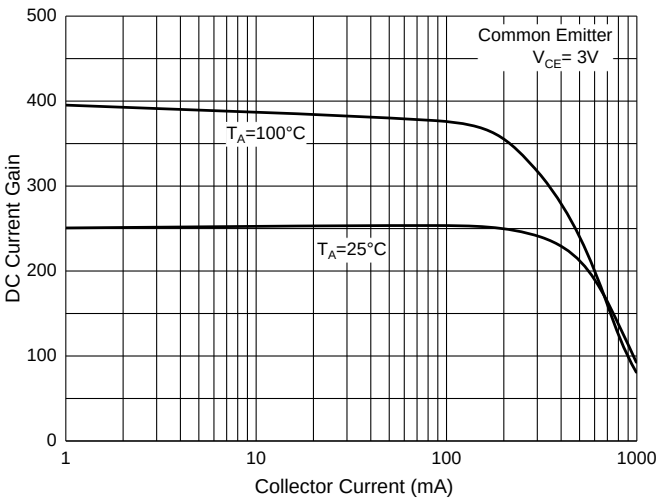


Fig. 3 - Base-Emitter Saturation Voltage Characteristics

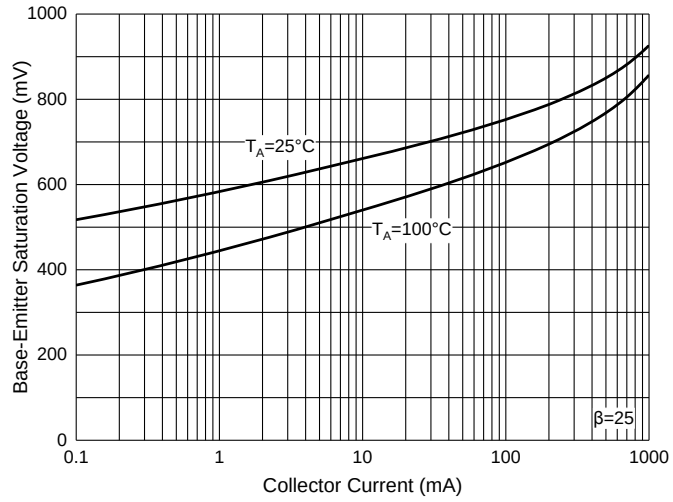


Fig. 4 - Collector-Emitter Saturation Voltage Characteristics

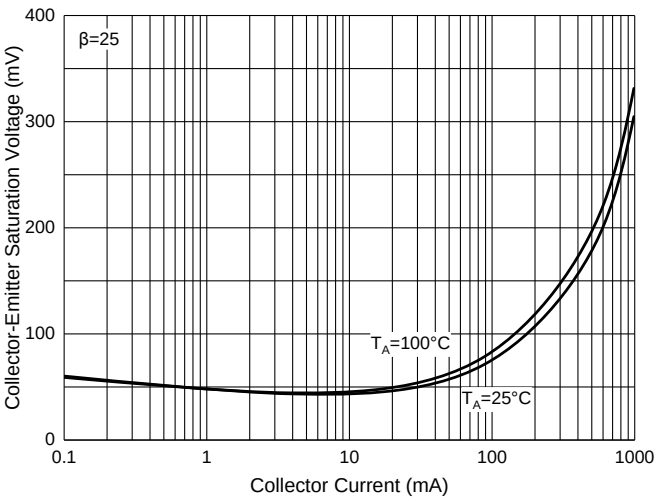
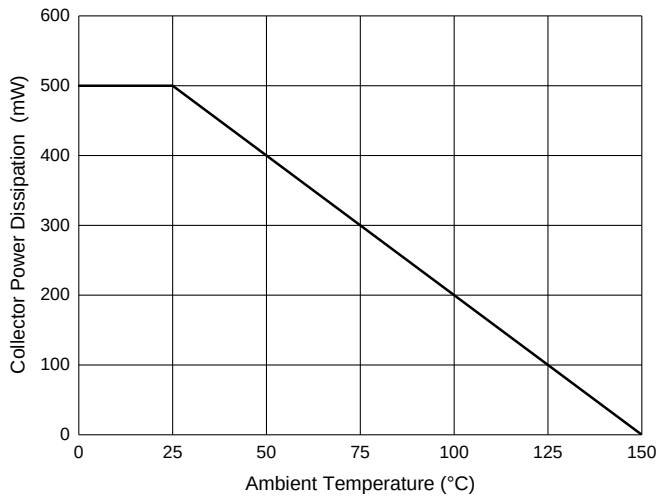


Fig. 5 - Collector Power Derating Curve



Ordering Information

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