

Features

- Ideally Suited for Automatic Insertion
- Low Current, Low Voltage
- 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)

Maximum Ratings @ 25°C Unless Otherwise Specified

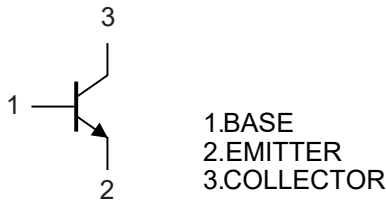
- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 625°C/W Junction to Ambient

Parameter	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	75	V
Collector-Emitter Voltage	V_{CEO}	45	V
Emitter-Base Voltage	V_{EBO}	5	V
Continuous Collector Current	I_C	800	mA
Power Dissipation	P_D	200	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.

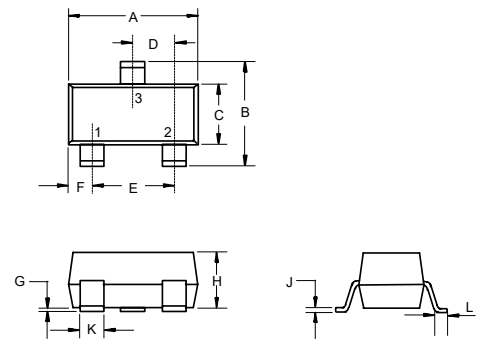
Marking: EF

Internal Structure



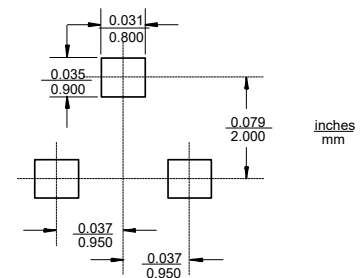
NPN Small Signal Transistor

SOT-23



DIM	DIMENSIONS				NOTE
	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	0.012	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}	75			V	I _C =10μA, I _E =0
Collector-Emitter Breakdown Voltage	V _{(BR)CEO}	45			V	I _C =10mA, I _B =0
Emitter-Base Breakdown Voltage	V _{(BR)EBO}	5			V	I _E =10μA, I _C =0
Collector-Base Cutoff Current	I _{CBO}			20	nA	V _{CB} =45V, I _E =0
Emitter-Base Cutoff Current	I _{EBO}			20	nA	V _{EB} =4V, I _C =0
DC Current Gain	h _{FE(1)}	35				V _{CE} =10V, I _C =100μA
	h _{FE(2)}	75				V _{CE} =1V, I _C =10mA
	h _{FE(3)}	100		250		V _{CE} =1V, I _C =100mA
	h _{FE(4)}	35				V _{CE} =2V, I _C =500mA
Collector-Emitter Saturation Voltage	V _{CE(sat)}			0.3	V	I _C =100mA, I _B =10mA
				0.7	V	I _C =500mA, I _B =50mA
Base-Emitter Saturation Voltage	V _{BE(sat)}			2.0	V	I _C =500mA, I _B =50mA
Transition Frequency	f _T	100			MHz	V _{CE} =10V, I _C =20mA, f=100MHz
Collector Output Capacitance	C _{ob}			12	pF	V _{CB} =10V, I _E =0, f=1MHz
Collector Input Capacitance	C _{ib}			80	pF	V _{EB} =0.5V, I _E =0, f=1MHz

Curve Characteristics

Fig. 1 - Static Characteristics

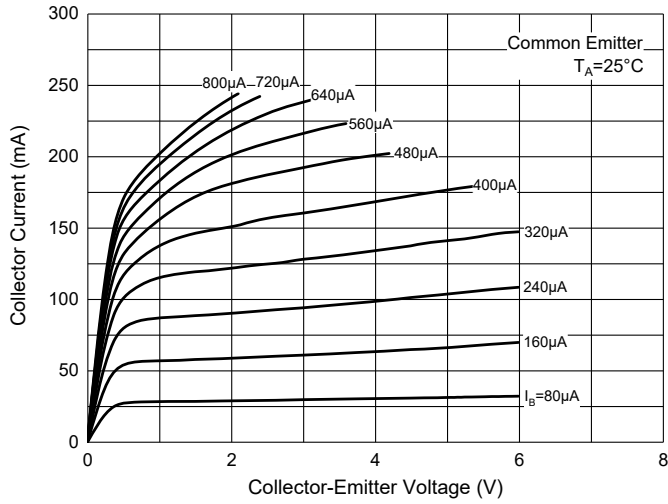


Fig. 2 - DC Current Gain Characteristics

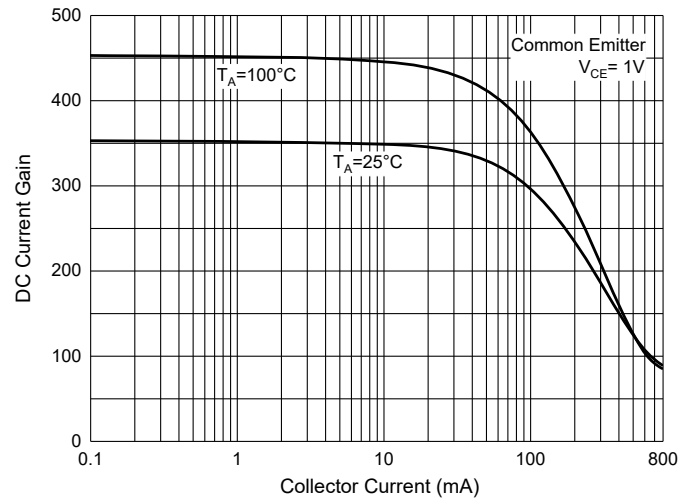


Fig. 3 - Base-Emitter Saturation Voltage Characteristics

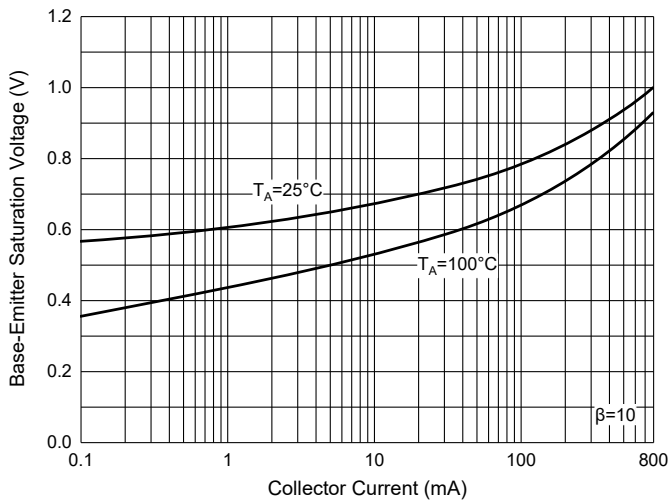


Fig. 4 - Collector-Emitter Saturation Voltage Characteristics

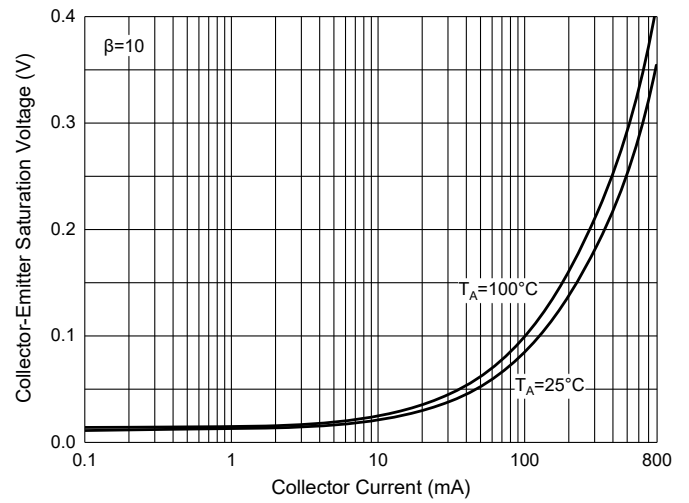


Fig. 5 - Transition frequency Characteristics

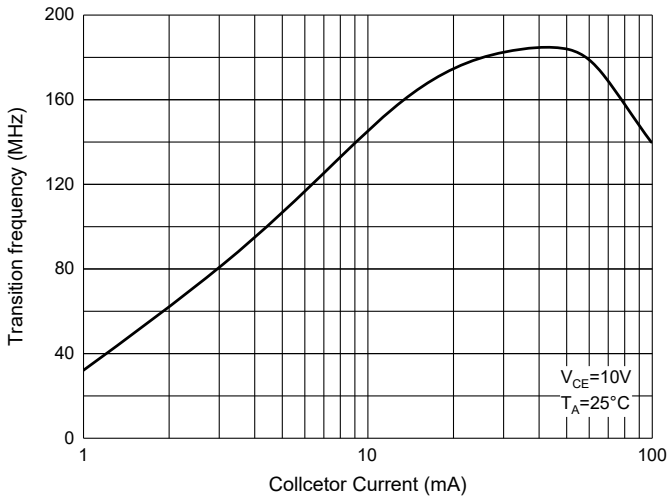
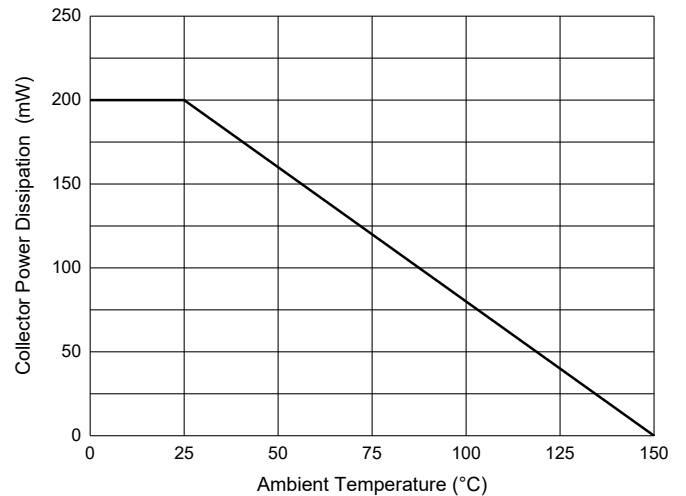


Fig. 6 - Collector Power Derating Curve



Ordering Information

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

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