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 Transistor

Maximum Ratings @ 25°C Unless Otherwise Specified

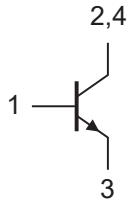
Parameter	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	100	V
Collector-Emitter Voltage	V_{CEO}	100	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current	I_C	5.1	A
Power Dissipation	P_D	0.5	W

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	$Rth_{(J-A)}$	250	°C/W
Thermal Resistance from Junction to Case	$Rth_{(J-C)}$	50	°C/W

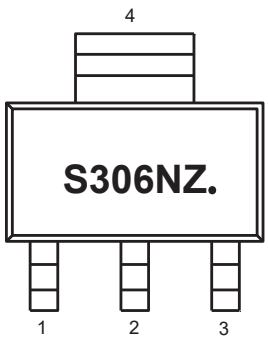
Note: 1. Halogen free "Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

Internal Structure

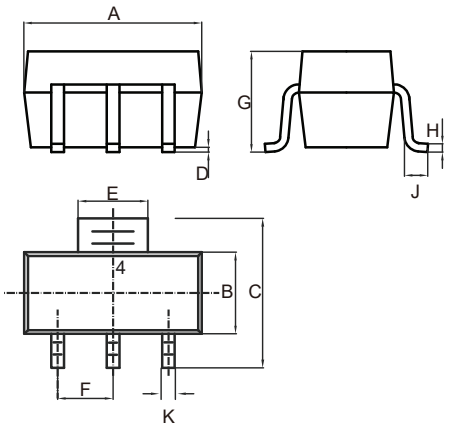


1.Base
2,4.Collector
3.Emitter

Marking Code

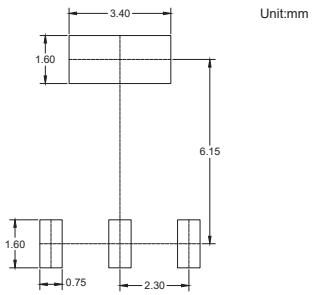


SOT-223



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.248	0.264	6.30	6.70	
B	0.130	0.146	3.30	3.70	
C	0.264	0.287	6.70	7.30	
D	0.001	0.004	0.02	0.10	
E	0.114	0.122	2.90	3.10	
F	0.091		2.30		TYP.
G	---	0.071	---	1.80	
H	0.009	0.014	0.23	0.35	
J	0.030	---	0.75	---	
K	0.026	0.033	0.66	0.84	

Suggested Solder Pad Layout



Electrical Characteristics @ 25°C Unless Otherwise Specified

Parameter	Symbol	Min	Typ	Max	Units	Conditions
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	100			V	I_C=1mA, I_E=0
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	100			V	I_C=1mA, I_B=0
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5			V	I_E=100uA, I_C=0
Collector-Base Cutoff Current	I_{CBO}			100	nA	V_{CB}=80V, I_E=0
Emitter-Base Cutoff Current	I_{EBO}			100	nA	V_{EB}=5V, I_C=0
Collector-Emitter Cutoff Current	I_{CES}			10	uA	V_{CE}=80V, I_C=0
DC Current Gain	$h_{FE(1)}$	200				V_{CE}=2V, I_C=0.5A
	$h_{FE(2)}$	150				V_{CE}=2V, I_C=1A
	$h_{FE(3)}$	100				V_{CE}=2V, I_C=2A
	$h_{FE(4)}$	50				V_{CE}=2V, I_C=4A
	$h_{FE(5)}$	40				V_{CE}=2V, I_C=5A
Collector-Emitter Saturation Voltage	$V_{CE(sat)1}$			40	mV	I_C=0.5A, I_B=50mA
	$V_{CE(sat)2}$			75	mV	I_C=1A, I_B=50mA
	$V_{CE(sat)3}$			150	mV	I_C=1A, I_B=10mA
	$V_{CE(sat)4}$			160	mV	I_C=2A, I_B=40mA
	$V_{CE(sat)5}$			225	mV	I_C=4A, I_B=200mA
	$V_{CE(sat)6}$			200	mV	I_C=4A, I_B=400mA
	$V_{CE(sat)7}$			245	mV	I_C=4.5A, I_B=225mA
Base-Emitter Saturation Voltage	$V_{BE(sat)1}$			1.0	V	I_C=1A, I_B=100mA
	$V_{BE(sat)2}$			1.1	V	I_C=4A, I_B=400mA
Base-Emitter Turn-on Voltage	$V_{BE(on)}$			0.9	V	I_C=2A, V_{CE}=2V
Transition Frequency	f_T		100		MHz	V_{CE}=10V, I_C=100mA, f=100MHz
Collector Capacitance	C_{ob}		24.7		pF	V_{CB}=10V, I_E=0, f=1MHz

Curve Characteristics

Fig. 1 - Static Characteristics

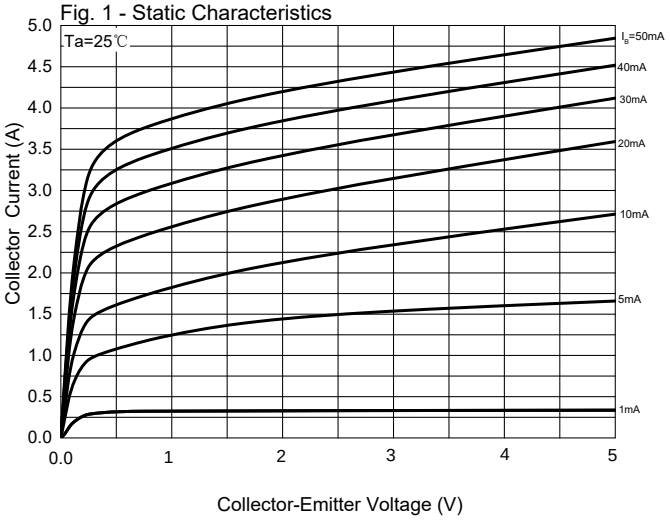


Fig. 2 - DC Current Gain Characteristics

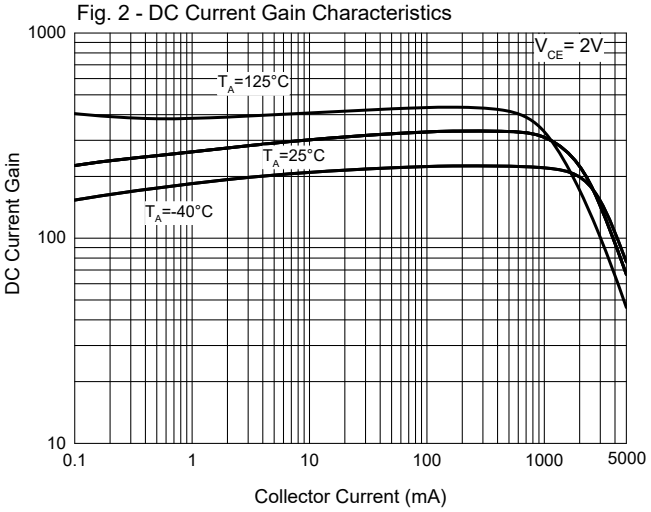


Fig. 3 - Collector-Emitter Saturation Voltage Characteristics

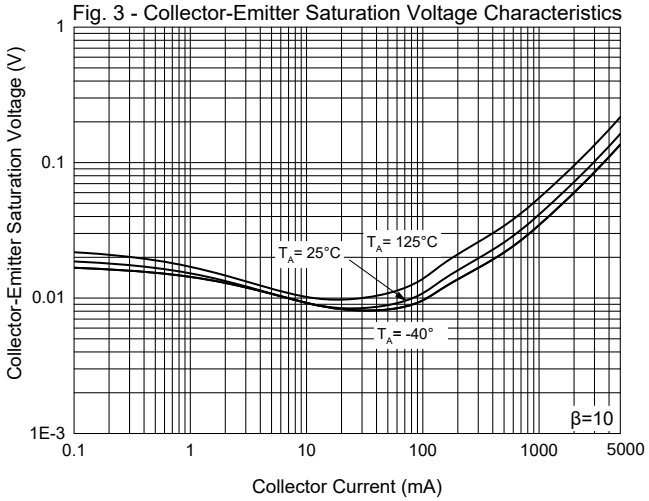


Fig. 4 - Base-Emitter Saturation Voltage Characteristics

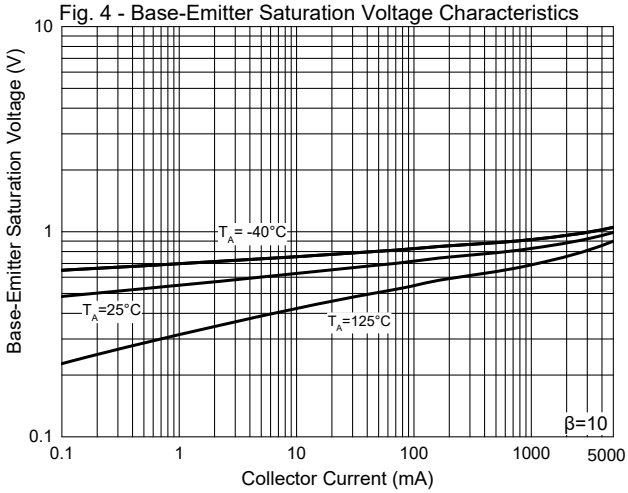


Fig. 5 - Base-Emitter Voltage Characteristics

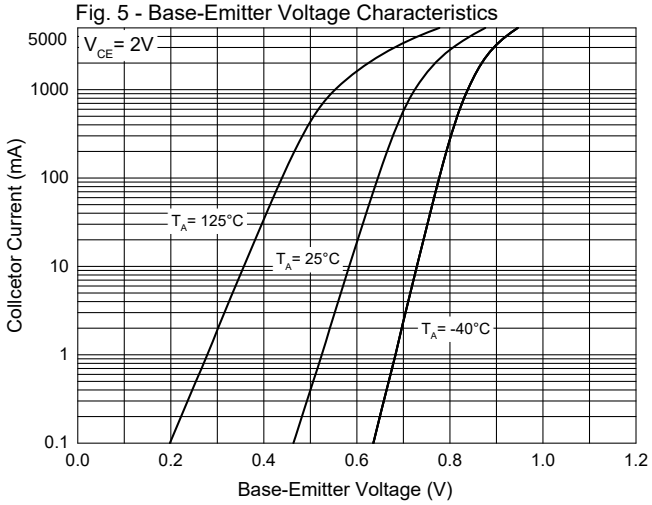
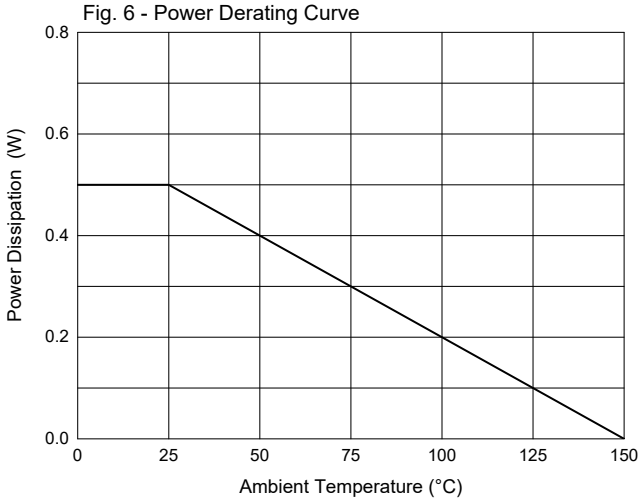


Fig. 6 - Power Derating Curve



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel; 2.5Kpcs/Reel