

Features

- Halogen Free. "Green" Device (Note 1)
- AEC-Q101 Qualified
- 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

Parameter	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	60	V
Collector-Emitter Voltage	V_{CEO}	60	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current	I_C	5.2	A
Power Dissipation ^(Note 2)	P_D	0.7	W
Power Dissipation ^(Note 3)	P_D	1	W

Thermal characteristics

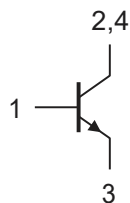
Parameter	Symbol	Rating	Unit
Junction Temperature Range	T_J	-55~+150	°C
Storage Temperature Range	T_{STG}	-55~+150	°C
Thermal Resistance from Junction to Ambient ^(Note2)	$R_{th(J-A)}$	179	°C/W
Thermal Resistance from Junction to Ambient ^(Note3)	$R_{th(J-A)}$	125	°C/W

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

2. Device mounted on an FR4 PCB, with standard footprint.

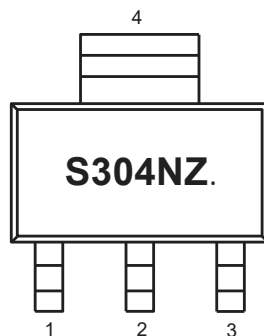
3. Device mounted on an FR4 PCB, mounting pad for collector 1 cm².

Internal Structure



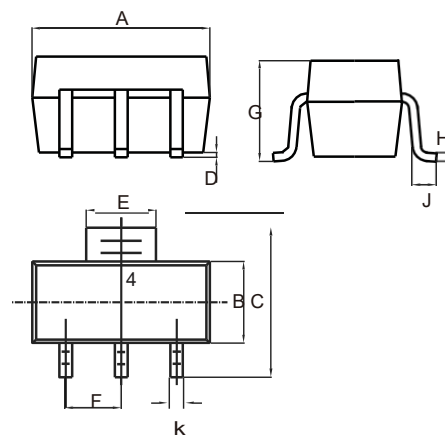
- 1.Base
2,4.Collector
3.Emitter

Marking Code



NPN Transistor

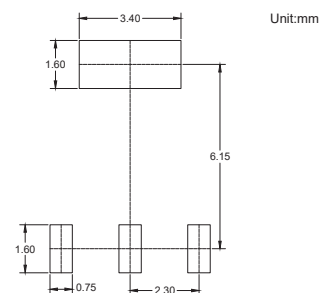
SOT-223



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	$V_{(BR)CBO}$	60			V	$I_C=100\mu A, I_E=0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	60			V	$I_C=10mA, I_B=0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5			V	$I_E=100\mu A, I_C=0$
Collector-Base Cutoff Current	I_{CBO}			100	nA	$V_{CB}=60V, I_E=0$
Emitter-Base Cutoff Current	I_{EBO}			100	nA	$V_{EB}=5V, I_C=0$
DC Current Gain	$h_{FE(1)}$	300				$V_{CE}=2V, I_C=0.5A$
	$h_{FE(2)}$	300				$V_{CE}=2V, I_C=1A$
	$h_{FE(3)}$	250				$V_{CE}=2V, I_C=2A$
	$h_{FE(4)}$	150				$V_{CE}=2V, I_C=4A$
	$h_{FE(5)}$	80				$V_{CE}=2V, I_C=6A$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			35	mV	$I_C=0.5A, I_B=50mA$
				70	mV	$I_C=1A, I_B=50mA$
				120	mV	$I_C=1A, I_B=10mA$
				150	mV	$I_C=2A, I_B=40mA$
				220	mV	$I_C=4A, I_B=200mA$
				210	mV	$I_C=4A, I_B=400mA$
				305	mV	$I_C=4A, I_B=80mA$
				280	mV	$I_C=5.2A, I_B=260mA$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$			0.9	V	$I_C=1A, I_B=100mA$
				1.05	V	$I_C=4A, I_B=400mA$
Collector-Emitter Saturation Resistance	$R_{CE(sat)}$			55	mΩ	$I_C=4A, I_B=200mA$
Base-Emitter Voltage	$V_{BE(ON)}$			0.85	V	$V_{CE}=2V, I_C=2A$
Transition Frequency	f_T	100			MHz	$V_{CE}=10V, I_C=100mA, f=100MHz$
Output Capacitance	C_{ob}		40		pF	$V_{CB}=10V, I_E=0, f=1MHz$

Curve Characteristics

Fig. 1 - Static Characteristics

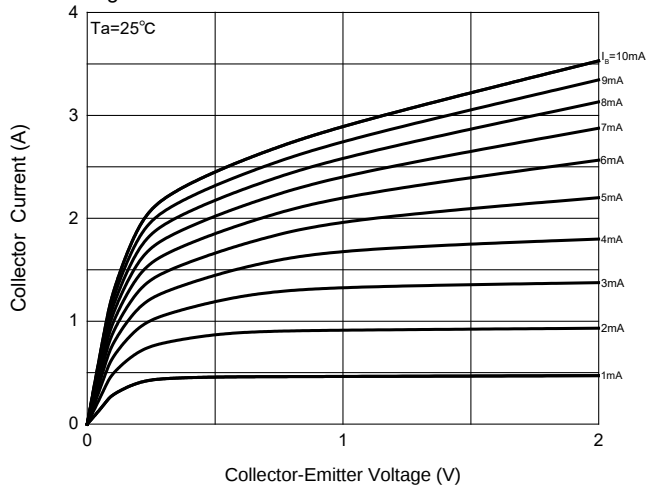


Fig. 2 - DC Current Gain Characteristics

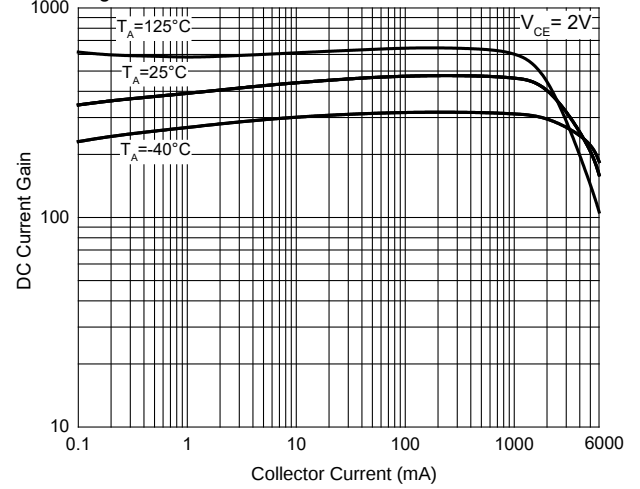


Fig. 3 - Collector-Emitter Saturation Voltage Characteristics

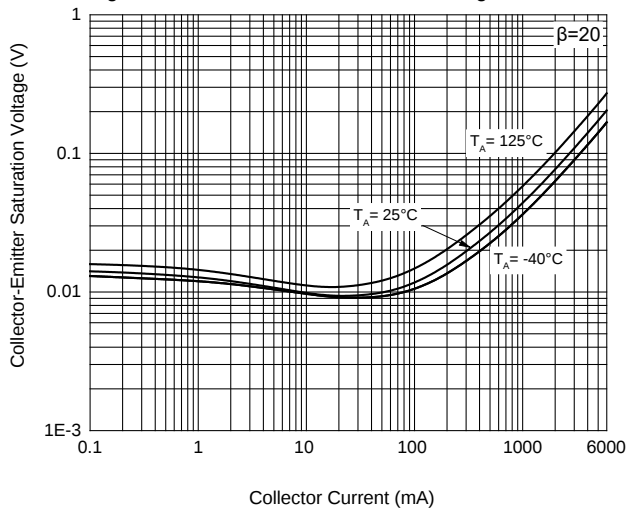


Fig. 4 - Base-Emitter Saturation Voltage Characteristics

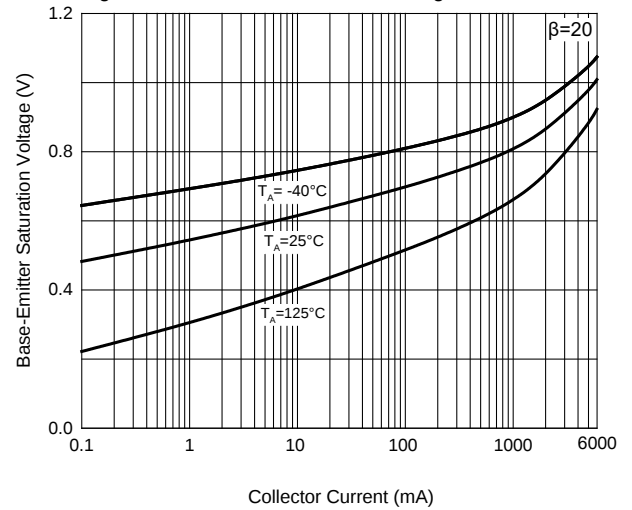


Fig. 5 - Base-Emitter Voltage Characteristics

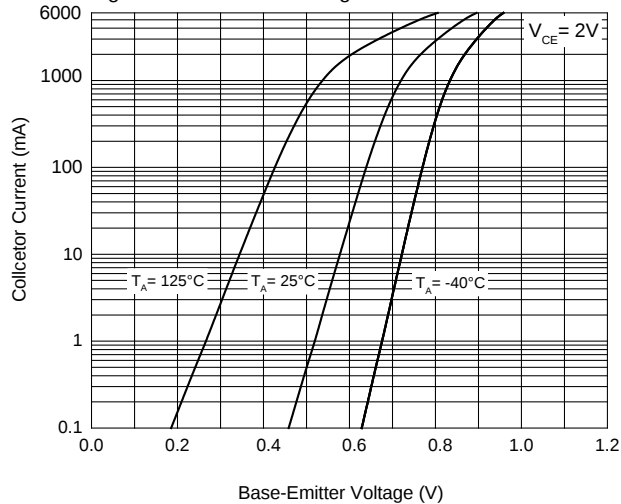
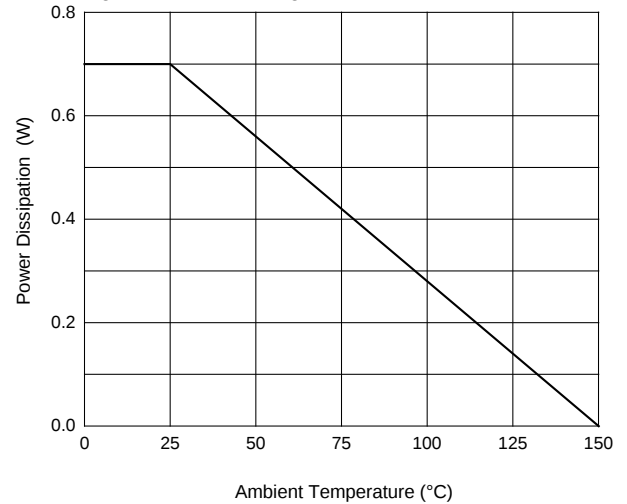


Fig. 6 - Power Derating Curve



Ordering Information

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

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