Features

- Epitaxial Die Construction
- Ideal for Low Power Amplification and Switching
- Ultra-Small Surface Mount Package
- 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 Amplifier

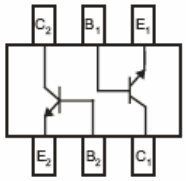
Maximum Ratings @ 25°C Unless Otherwise Specified

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

Parameter	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	60	V
Collector-Emitter Voltage	V_{CEO}	40	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current	I_C	200	mA
Collector Power Dissipation	P_C	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.

Internal Structure



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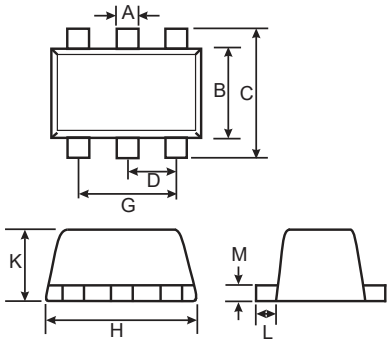

DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.006	0.011	0.15	0.30	
B	0.043	0.051	1.10	1.30	
C	0.059	0.067	1.50	1.70	
D	0.020		0.50		TYP.
G	0.035	0.043	0.90	1.10	
H	0.059	0.067	1.50	1.70	
K	0.022	0.026	0.55	0.65	
L	0.004	0.011	0.10	0.30	
M	0.004	0.007	0.10	0.18	

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=10μA, I_E=0
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	40			V	I_C=1mA, I_B=0
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	6			V	I_E=10μA, I_C=0
Base Cutoff Current	I_{BL}			50	nA	V_{CE}=30V, $V_{EB(OFF)}$=3V
Collector Cutoff Current	I_{CEX}			50	nA	V_{CE}=30V, $V_{EB(OFF)}$=3V
DC Current Gain(Note2)	$h_{FE(1)}$	40				V_{CE}=1V, I_C=0.1mA
	$h_{FE(2)}$	70				V_{CE}=1V, I_C=1mA
	$h_{FE(3)}$	100		300		V_{CE}=1V, I_C=-10mA
	$h_{FE(4)}$	60				V_{CE}=1V, I_C=50mA
	$h_{FE(5)}$	30				V_{CE}=1V, I_C=100mA
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			0.2	V	I_C=10mA, I_B=1mA
				0.3	V	I_C=50mA, I_B=5mA
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	0.65		0.85	V	I_C=10mA, I_B=1mA
				0.95	V	I_C=50mA, I_B=5mA
Transition Frequency	f_T	300			MHz	V_{CE}=20V, I_C=10mA, f=100MHz
Output Capacitance	C_{ob}			4.0	pF	V_{CB}=5V, I_E=0, f=1MHz,
Noise Figure	NF			5	dB	V_{CE}=5V, I_C=0.1mA R_S=1KΩ, f=1KHz
Delay Time	t_d			35	ns	V_{CC}=3V, I_C=10mA
Rise Time	t_r			35	ns	$V_{BE(OFF)}$=-0.5V, I_{B1}=-I_{B2}=1mA
Storage Time	t_s			200	ns	V_{CC}=3V, I_C=10mA
Fall Time	t_f			50	ns	I_{B1}=I_{B2}=1mA

Note: 2.Pulse Width ≤ 300μs, Duty Cycle≤2.0%

Curve Characteristics

Fig. 1 - Static Characteristics

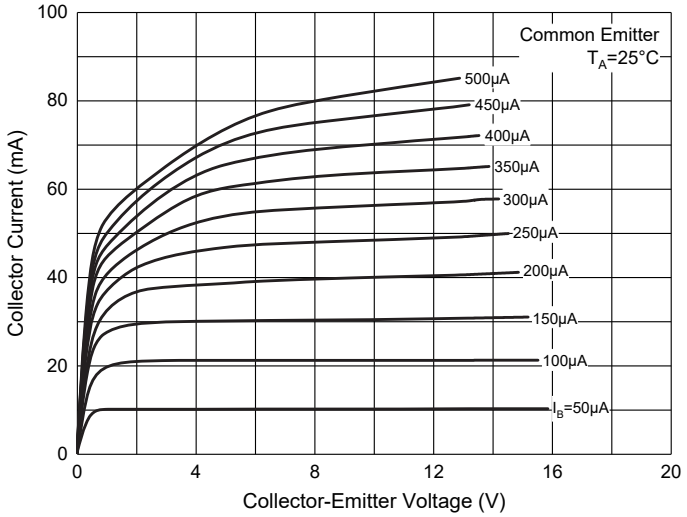

Fig. 2 - DC Current Gain Characteristics

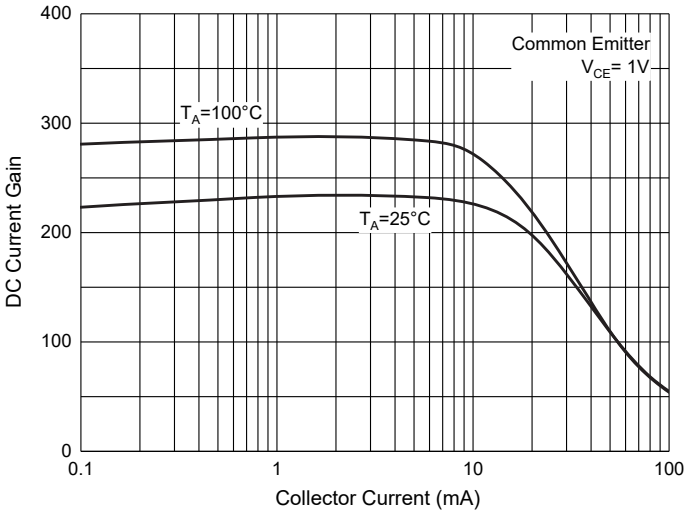

Fig. 4 - Collector-Emitter Saturation Voltage Characteristics

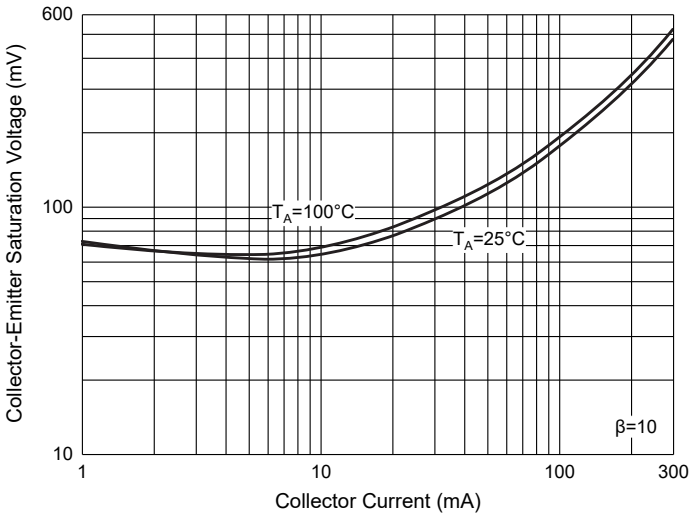

Fig. 4 - Base-Emitter Saturation Voltage Characteristics

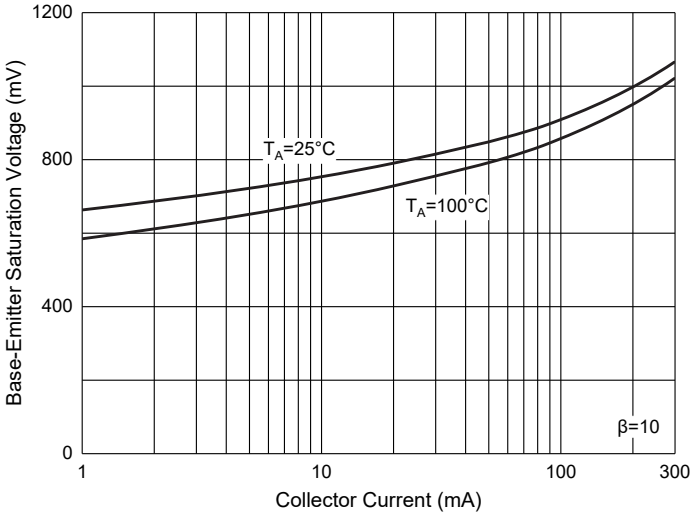

Fig. 5 - Base-Emitter Voltage Characteristics

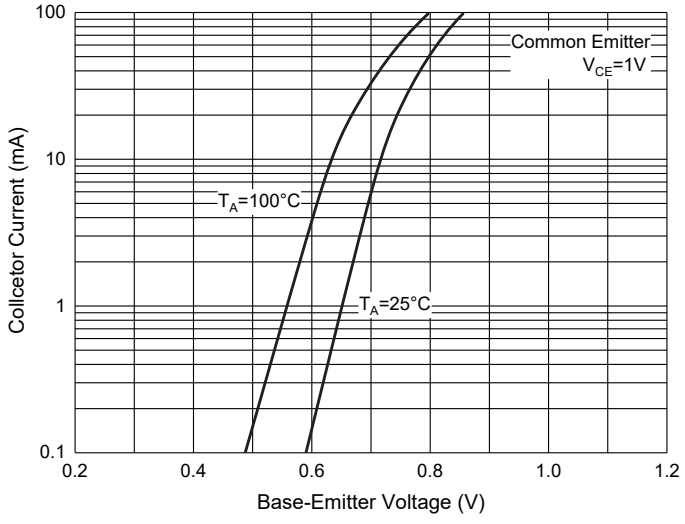

Fig. 6 - Collector Power Derating Curve