

**Features**

- Low Collector Capacitance
- Low Collector-Emitter Saturation Voltage
- 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

**NPN Pin1,&6**

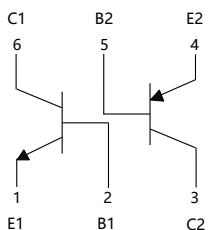
Parameter	Symbol	Rating	Unit
Collector-Base Voltage	$V_{CBO}$	80	V
Collector-Emitter Voltage	$V_{CEO}$	65	V
Emitter-Base Voltage	$V_{EBO}$	6	V
Collector Current	$I_C$	100	mA
Peak Collector Current	$I_{CM}$	200	mA
Power Dissipation	$P_C$	200	mW

**PNP Pin' ,(,)**

Parameter	Symbol	Rating	Unit
Collector-Base Voltage	$V_{CBO}$	-80	V
Collector-Emitter Voltage	$V_{CEO}$	-65	V
Emitter-Base Voltage	$V_{EBO}$	-6	V
Collector Current	$I_C$	-100	mA
Peak Collector Current	$I_{CM}$	-200	mA
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.

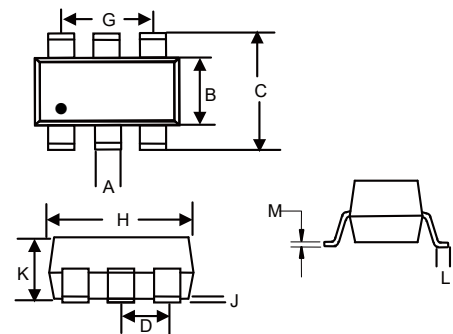
**Internal Structure**



**Marking: PJ**

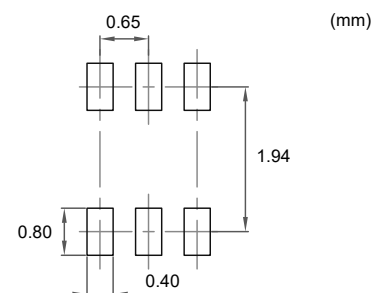
**NPN/PNP  
Small Signal  
Transistors**

**SOT-363**



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	0.006	0.014	0.15	0.35	
B	0.045	0.053	1.15	1.35	
C	0.079	0.096	2.00	2.45	
D	0.026		0.65		TYP.
G	0.047	0.055	1.20	1.40	
H	0.071	0.087	1.80	2.20	
J	----	0.004	----	0.10	
K	0.031	0.043	0.80	1.10	
L	0.010	0.018	0.26	0.46	
M	0.003	0.006	0.08	0.15	

**Suggested Solder Pad Layout**



**NPN Electrical Characteristics @ 25°C Unless Otherwise Specified**

Parameter	Symbol	Min	Typ	Max	Units	Conditions
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	80			V	$I_C=10\mu A, I_E=0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	65			V	$I_C=10mA, I_B=0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	6			V	$I_E=10\mu A, I_C=0$
Collector-Base Cutoff Current	$I_{CBO}$			15	nA	$V_{CB}=50V, I_E=0$
Emitter-Base Cutoff Current	$I_{EBO}$			100	nA	$V_{EB}=6V, I_C=0$
DC Current Gain	$h_{FE}$	200		450		$V_{CE}=5V, I_C=2mA$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		0.05	0.1	V	$I_C=10mA, I_B=0.5mA$
			0.2	0.3	V	$I_C=100mA, I_B=5mA$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		0.755	0.85	V	$I_C=10mA, I_B=0.5mA$
			1		V	$I_C=100mA, I_B=5mA$
Base-Emitter Voltage	$V_{BE}$	0.58	0.65	0.7	V	$V_{CE}=5V, I_C=2mA$
				0.77	V	$V_{CE}=5V, I_C=10mA$
Collector Capacitance	$C_c$		1.9		pF	$V_{CB}=10V, f=1MHz$
Emitter Capacitance	$C_e$		11		pF	$V_{CB}=0.5V, f=1MHz$
Transition Frequency	$f_T$	100			MHz	$V_{CE}=5V, I_C=10mA, f=100MHz$

## PNP Electrical Characteristics @ 25°C Unless Otherwise Specified

Parameter	Symbol	Min	Typ	Max	Units	Conditions
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-80			V	$I_C = -10\mu A, I_E = 0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-65			V	$I_C = -10mA, I_B = 0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-6			V	$I_E = -10\mu A, I_C = 0$
Collector-Base Cutoff Current	$I_{CBO}$			-15	nA	$V_{CB} = -50V, I_E = 0$
Emitter-Base Cutoff Current	$I_{EBO}$			-100	nA	$V_{EB} = -6V, I_C = 0$
DC Current Gain	$h_{FE(1)}$		280			$V_{CE} = -5V, I_C = -10\mu A$
	$h_{FE(2)}$	200	290	450		$V_{CE} = -5V, I_C = -2mA$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			-0.3	V	$I_C = -10mA, I_B = -0.5mA$
				-0.65	V	$I_C = -100mA, I_B = -5mA$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		-0.755	-0.85	V	$I_C = -10mA, I_B = -0.5mA$
			-0.9		V	$I_C = -100mA, I_B = -5mA$
Base-Emitter Voltage	$V_{BE}$	-0.6	-0.65	-0.75	V	$V_{CE} = -5V, I_C = -2mA$
				-0.82	V	$V_{CE} = -5V, I_C = -10mA$
Collector Capacitance	$C_c$		2.3		pF	$V_{CB} = -10V, f = 1MHz$
Emitter Capacitance	$C_e$		10		pF	$V_{CB} = -0.5V, f = 1MHz$
Transition Frequency	$f_T$	100			MHz	$V_{CE} = -5V, I_C = -10mA, f = 100MHz$

### Curve Characteristics (NPN Transistor)

Fig. 1 - Static Characteristics

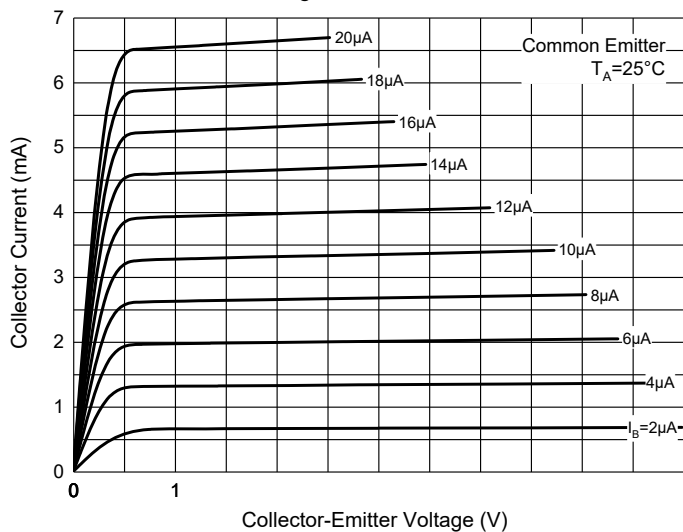


Fig. 2 - DC Current Gain Characteristics

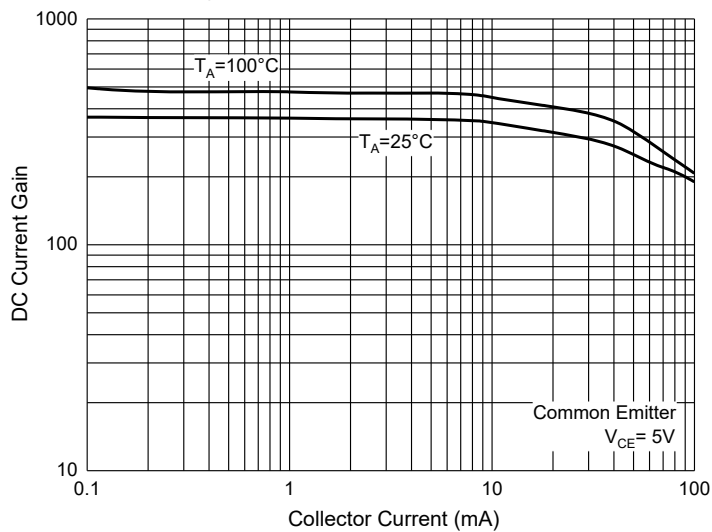


Fig. 3 - Collector-Emmitter Saturation Voltage Characteristics

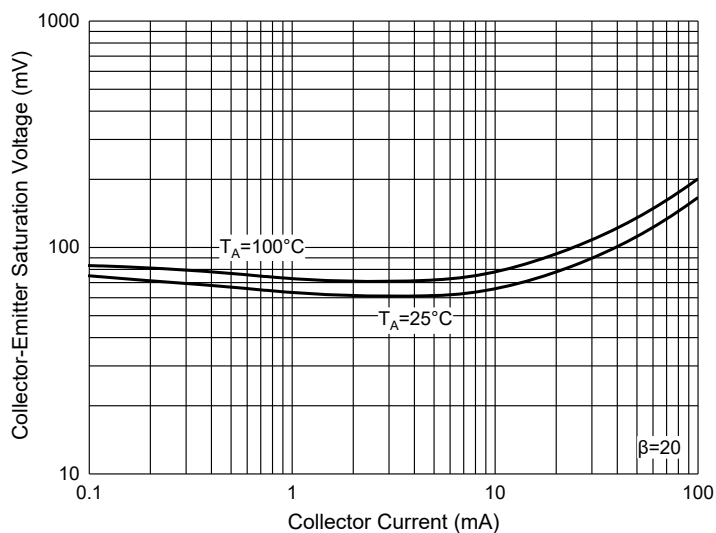


Fig. 4 - Base-Emmitter Saturation Voltage Characteristics

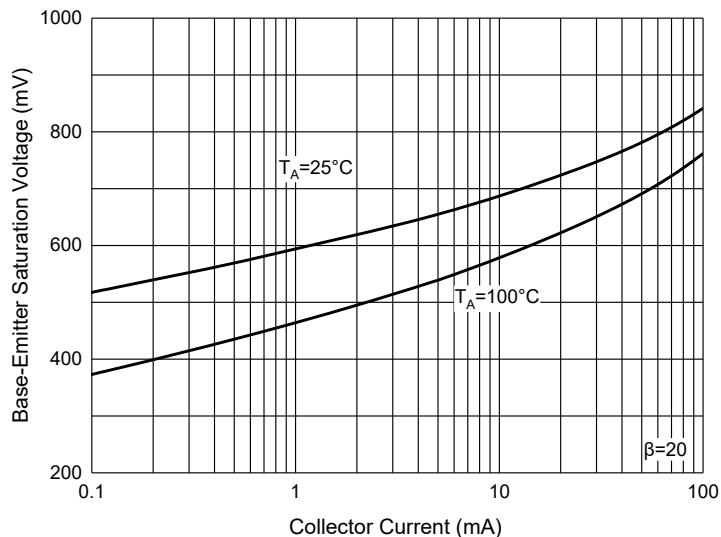


Fig. 5 - Base-Emmitter Voltage Characteristics

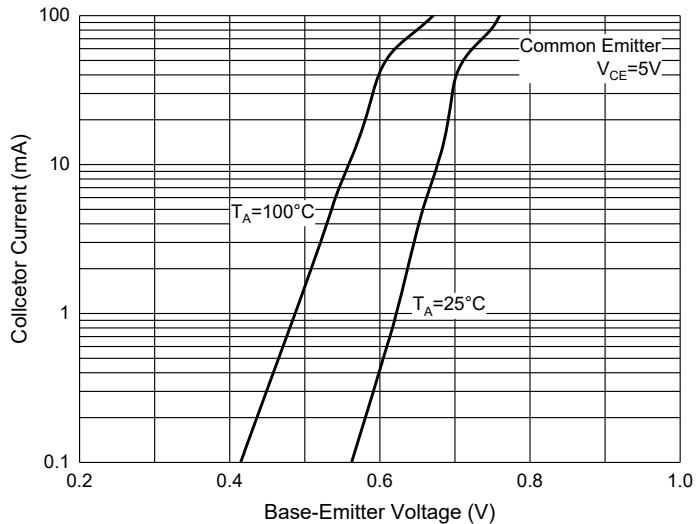
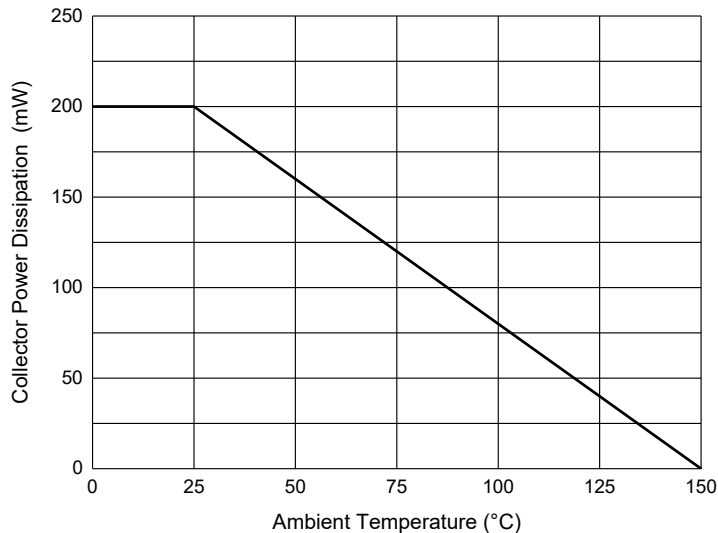


Fig. 6 - Collector Power Derating Curve



**Curve Characteristics (PNP Transistor)**

Fig. 7 - Static Characteristics

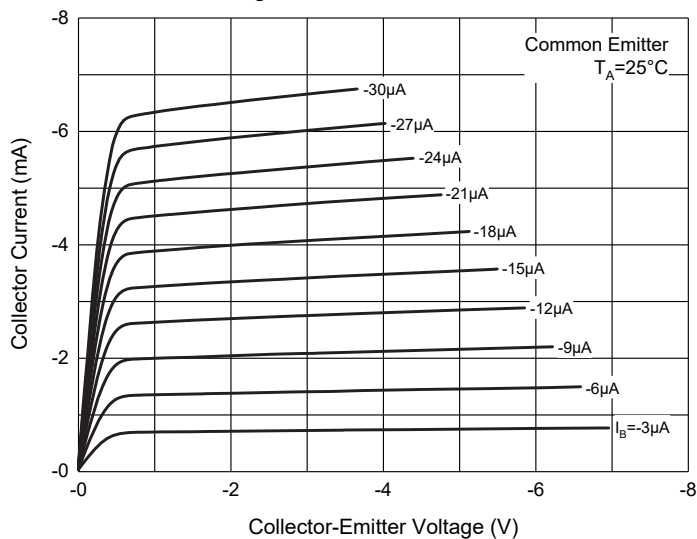


Fig. 8 - DC Current Gain Characteristics

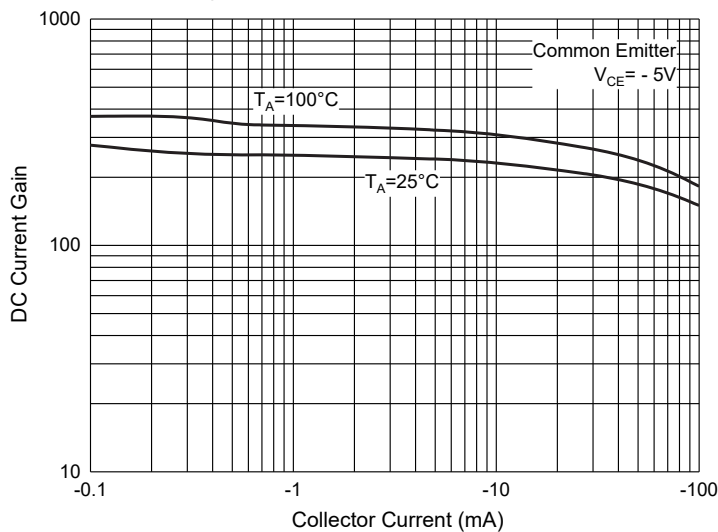


Fig. 9 - Collector-Emmitter Saturation Voltage Characteristics

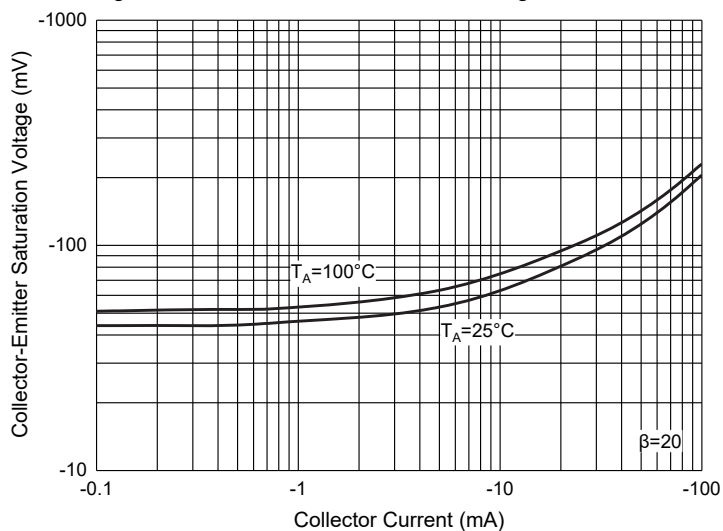


Fig. 10 - Base-Emmitter Saturation Voltage Characteristics

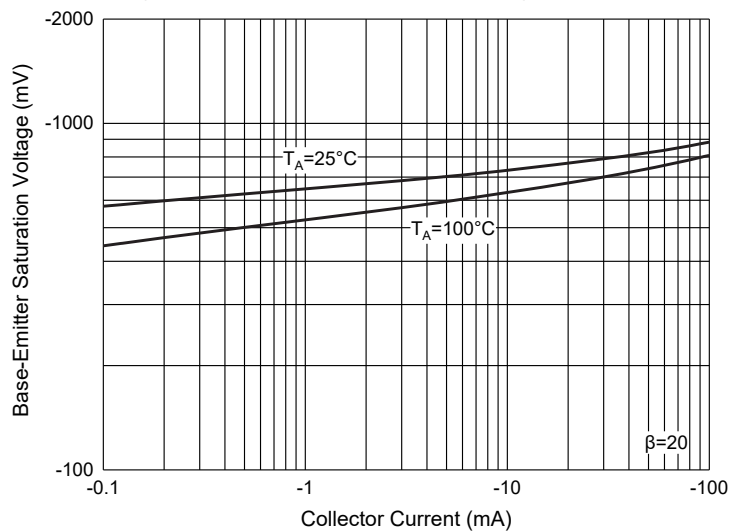


Fig. 11 - Base-Emmitter Voltage Characteristics

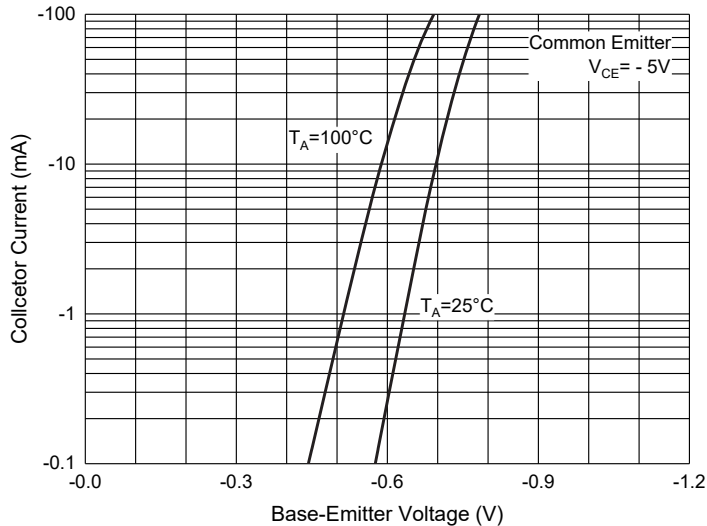
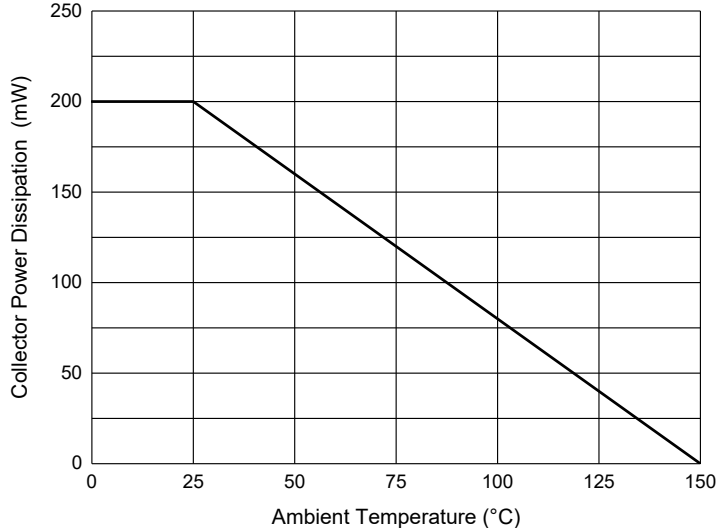


Fig. 12- Collector Power Derating Curve



## Ordering Information

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

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