

## Features

- Epitaxial Die Construction
- For Switching and AF Amplifier Applications
- 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

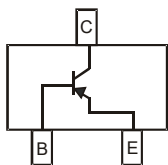
Parameter	Symbol	Rating	Unit
Collector-Base Voltage	$V_{CBO}$	-50	V
Collector-Emitter Voltage	$V_{CEO}$	-45	V
Emitter-Base Voltage	$V_{EBO}$	-6	V
Collector Current	$I_C$	-100	mA
Collector Power Dissipation	$P_C$	150	mW

## Classification Of $h_{FE}$

Rank	BC857AT	BC857BT	BC857CT
Range	125-250	220-475	420-800
Marking	3E	3F	3G

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



### SOT-523

DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.059	0.067	1.50	1.70	
B	0.030	0.033	0.75	0.85	
C	0.057	0.069	1.45	1.75	
D	0.020		0.50		TYP.
E	0.035	0.043	0.90	1.10	
G	0.000	0.004	0.00	0.10	
H	0.024	0.031	0.60	0.80	
J	0.004	0.008	0.10	0.20	
K	0.006	0.014	0.15	0.35	

#### Suggested Solder Pad Layout

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

Parameter	Symbol	Min	Typ	Max	Units	Conditions
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-50			V	$I_C = -10\mu A, I_E = 0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-45			V	$I_C = -10mA, I_B = 0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-6			V	$I_E = -1\mu A, I_C = 0$
Collector-Base Cutoff Current	$I_{CBO}$			-15	nA	$V_{CB} = -30V, I_E = 0$
Current Gain A		125		250		$V_{CE} = -5V, I_C = -2mA$
DC Current Gain B	$h_{FE}$	220		475		
DC Current Gain C		420		800		
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	$V_{BE(sat)}$		-0.7		V	$I_C = -10mA, I_B = -0.5mA$
			-0.9		V	$I_C = -100mA, I_B = -5mA$
Base-Emitter Voltage	$V_{BE}$	-0.6		-0.75	V	$V_{CE} = -5V, I_C = -2mA$
				-0.82	V	$V_{CE} = -5V, I_C = -10mA$
Transition Frequency	$f_T$	100			MHz	$V_{CE} = -5V, I_C = -10mA, f = 100MHz$
Output Capacitance	$C_{ob}$			4.5	pF	$V_{CB} = -10V, f = 1MHz$
Noise Figure	NF			10	dB	$V_{CE} = -5V, I_C = -0.2mA$ $R_S = 2K\Omega, f = 1KHz, BW = 200Hz$

**Curve Characteristics**

Fig. 1 - Static Characteristics

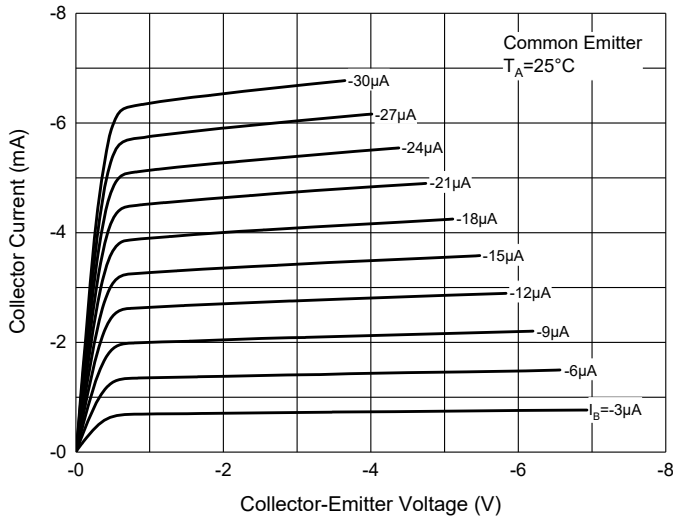


Fig. 2 - DC Current Gain Characteristics

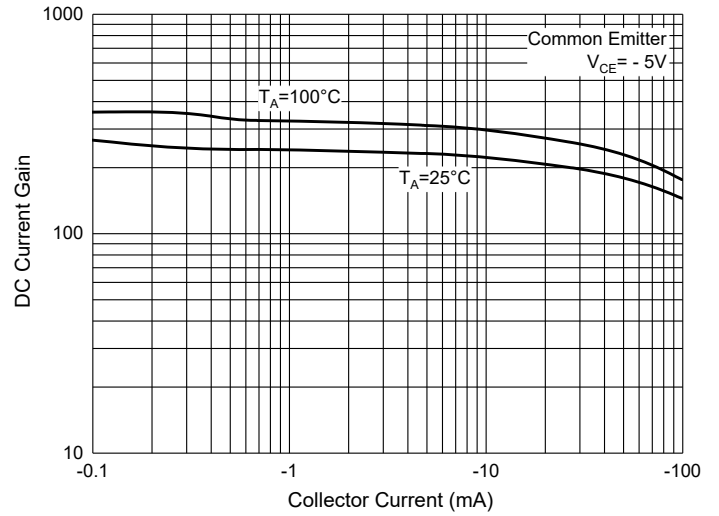


Fig. 3 - Collector-Emitter Saturation Voltage Characteristics

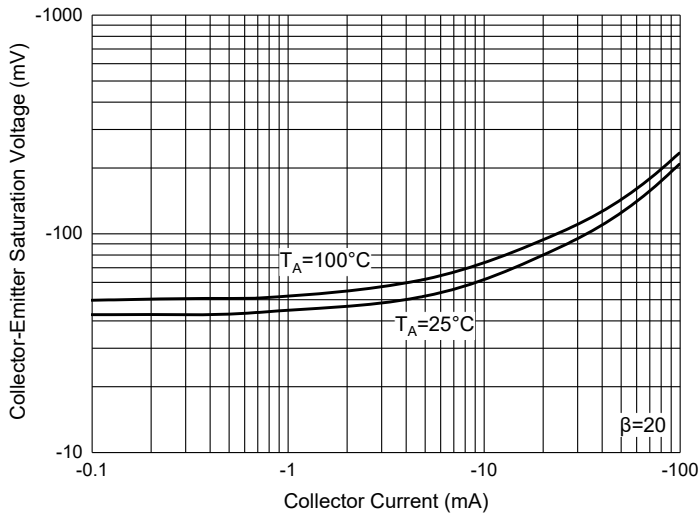


Fig. 4 - Base-Emitter Saturation Voltage Characteristics

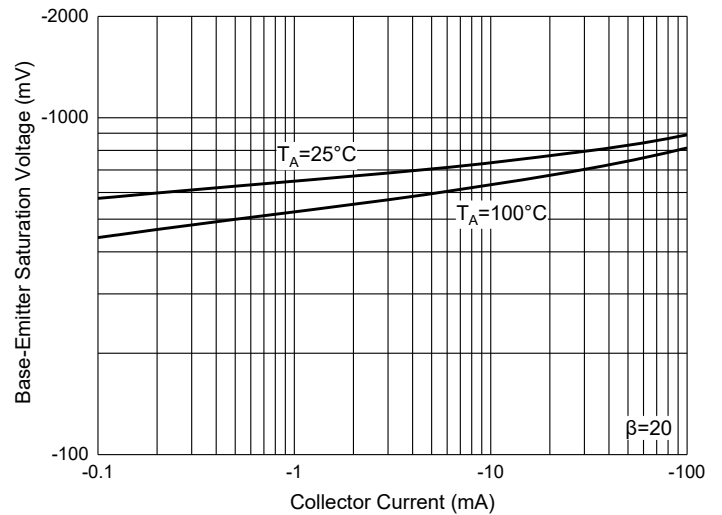


Fig. 5 - Base-Emitter Voltage Characteristics

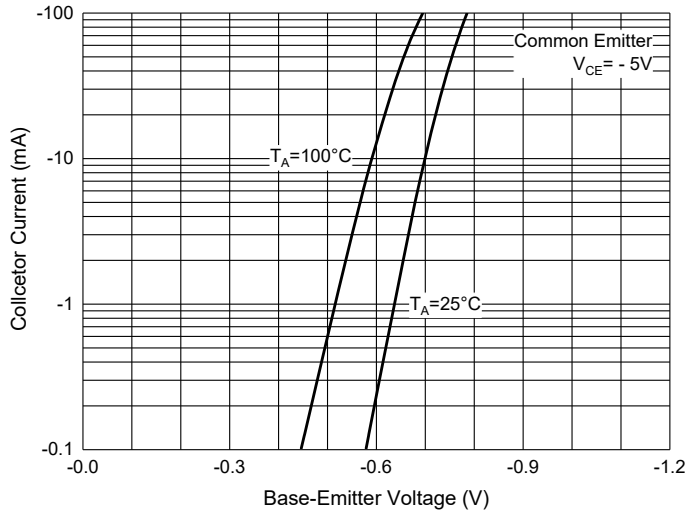
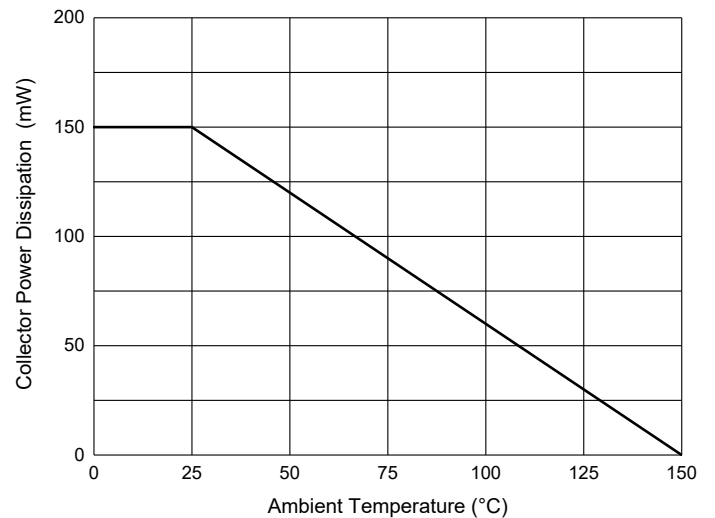


Fig. 6 - Collector Power Derating Curve



## Ordering Information

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

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