

Features

- Halogen Free. "Green" Device (Note 1)
- AEC-Q101 Qualified
- For Switching and AF Amplifier Applications
- 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

- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 320°C/W Junction to Solder-point (Note2)
- Thermal Resistance: 403°C/W Junction to Ambient (Note2)

Parameter	Symbol	Rating	Unit
Collector-Base Voltage	V _{CBO}	-50	V
Collector-Emitter Voltage	V _{CEO}	-45	V
Emitter-Base Voltage	V _{EBO}	-5	V
Collector Current	Ι _C	-100	mA
Peak Collector Current	I _{CM}	-200	mA
Peak Emitter Current	I _{EM}	-200	mA
Power Dissipation T _S =50°C (Note2)	PD	310	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.

2. Package Mounted 1.0*1.0mm Pad Layout 1oz Copper That is On a Single-sided FR4 PCB.

Part Number	BC857AHE3	BC857BHE3	BC857CHE3
Marking	3E	3F	3G

Internal Structure





DIMENSIONS						
		HES MM		М	NOTE	
Divi	MIN	MAX	MIN	MAX	NOTE	
A	0.110	0.120	2.80	3.04		
В	0.083	0.104	2.10	2.64		
С	0.047	0.055	1.20	1.40		
D	0.034	0.041	0.85	1.05		
E	0.067	0.083	1.70	2.10		
F	0.018	0.024	0.45	0.60		
G	0.0004	0.006	0.01	0.15		
Н	0.035	0.043	0.90	1.10		
J	0.003	0.007	0.08	0.18		
K	0.014	0.020	0.35	0.51		
L	0.007	0.020	0.20	0.50		

Suggested Solder Pad Layout





Electrical Characteristics @ 25°C Unless Otherwise Specified

Parameter		Symbol	Min	Тур	Max	Units	Conditions
Collector-Base Breakdown Voltage ^(Note3)		V _{(BR)CBO}	-50			V	Ι _C =-10μΑ, Ι _E =0
Collector-Emitter Breakdown Vol	tage ^(Note3)	V _{(BR)CEO}	-45			V	I _C =-10mA, I _B =0
Emitter-Base Breakdown Voltage	(Note3)	V _{(BR)EBO}	-5			V	Ι _E =-1μΑ, Ι _C =0
		I _{CES}			-15	nA	V _{CE} =-50V
Collector-Cutoff Current (Note3)					-15	nA	V _{CB} =-30V
		ICBO			-4	μA	V _{CB} =-30V, T _A =150°C
	BC857AHE3	h _{FE}	125	180	250		
DC Current Gain ^(Note3)	BC857BHE3		220	290	475		V _{CE} =-5Vdc, I _C =-2mA
	BC857CHE3		420	520	800		
	BC857AHE3			200			
Small Signal Current Gain	BC857BHE3	h _{fe}		330			
	BC857CHE3			600			
	BC857AHE3	h _{ie}		2.7		KΩ	
Input Impedance	BC857BHE3			4.5			
	BC857CHE3			8.7			V_{CE} =-5V
	BC857AHE3	h _{oe}		18		μS	f=1KHz
Output Admittance	BC857BHE3			30			
	BC857CHE3			60			
	BC857AHE3	$\frac{1.5 \times 10^{-4}}{h_{re}} = \frac{1.5 \times 10^{-4}}{2 \times 10^{-4}}$					
Reverse Voltage Transfer Ratio	BC857BHE3			2x10 ⁻⁴			
	BC857CHE3			3x10 ⁻⁴			
	(Note3)	V		-75	-300	mV	I _C =-10mA, I _B =-0.5mA
Collector-Emitter Saturation Voltage		V _{CE(sat)}		-250	-650	mV	I _C =-100mA, I _B =-5mA
	(Note3)	V		-700		mV	I _C =-10mA, I _B =-0.5mA
Base-Emitter Saturation Voltage (Notes)		V BE(sat)		-850		mV	I _C =-100mA, I _B =-5mA
Base-Emitter Voltage ^(Note3)		V _{BE}	-600	-650	-750	mV	V _{CE} =-5V, I _C =-2mA
					-820	mV	V _{CE} =-5V, I _C =-10mA
Current Gain-Bandwidth Product		f _T	100	200		MHz	V _{CE} =-5V, I _C =-10mA, f=100MHz
Collector-Base Capacitance		C _{CBO}		3		pF	V _{CB} =-10V, f=1MHz
Noise Figure		NE		0	10	дЬ	V _{CE} =-5V, I _C =-200µA
		NF		2	10		R _s =2KΩ, f=1KHz, Δ f=200Hz

Note: 3. Short Duration Pulse Test to Minimize Self-heating Effect.



Curve Characteristics















Fig. 6 - Collector Power Derating Curve





Ordering Information

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

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