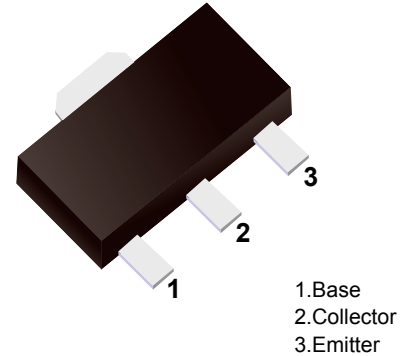


■ NPN Transistors



■ Features

- Low noise and high gain
- High power gain
- Large P_{tot}

■ Simplified outline(SOT-89)

■ Absolute Maximum Ratings Ta = 25°C

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V _{CB0}	20	V
Collector - Emitter Voltage	V _{CEO}	12	
Emitter - Base Voltage	V _{EB0}	3	
Collector Current - Continuous	I _c	100	mA
Collector Power Dissipation	P _C	1.2	W
Junction to Ambient Resistance	R _{th(j-a)}	62.5	°C/W
Junction Temperature	T _J	150	°C
Storage Temperature Range	T _{stg}	-55 to 150	

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	V _{CB0}	I _c = 100 μA, I _E = 0	20			V
Collector- emitter breakdown voltage	V _{CEO}	I _c = 1 mA, I _B = 0	12			
Emitter - base breakdown voltage	V _{EB0}	I _E = 100 μA, I _C = 0	3			
Collector-base cut-off current	I _{CB0}	V _{CB} = 20V, I _E = 0			1	uA
Emitter cut-off current	I _{EB0}	V _{EB} = 3V, I _C =0			1	
Collector-emitter saturation voltage	V _{CE(sat)}	I _C =50 mA, I _B =5mA			0.4	V
Base - emitter saturation voltage	V _{BE(sat)}	I _C =50 mA, I _B =5mA			1.2	
DC current gain (Note.1)	h _{FE}	V _{CE} = 10V, I _C = 20mA	50		250	
Insertion Power Gain	S _{21e} ²	V _{CE} = 10V, I _C = 20mA, f= 1GHz		9		dB
Noise Figure	NF	V _{CE} = 10V, I _C = 7mA, f= 1GHz		1.1		
		V _{CE} = 10V, I _C = 40mA, f= 1GHz		1.8	3	
Reverse Transfer Capacitance	C _{re}	V _{CB} = 10V, I _E = 0, f=1MHz			1	pF
Transition frequency	f _T	V _{CE} = 10V, I _C = 20mA		6.5		GHz

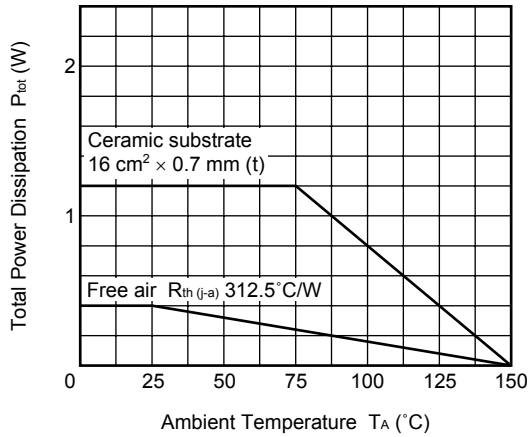
Note.1: Pulse measurement: PW ≤ 350 us, Duty Cycle ≤ 2%

■ Classification of h_{FE}

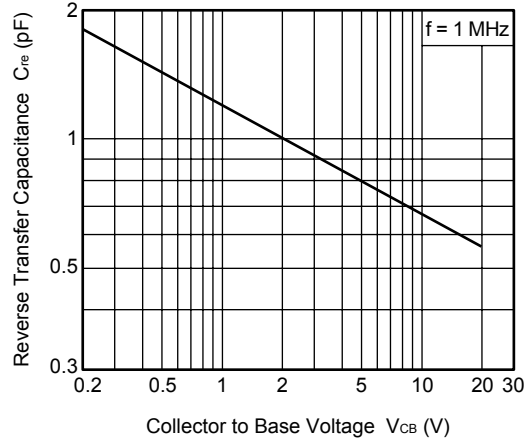
Type	2SC3357-F	2SC3357-E
Range	80-160	125-250
Marking	RF	RE

■ Typical Characteristics

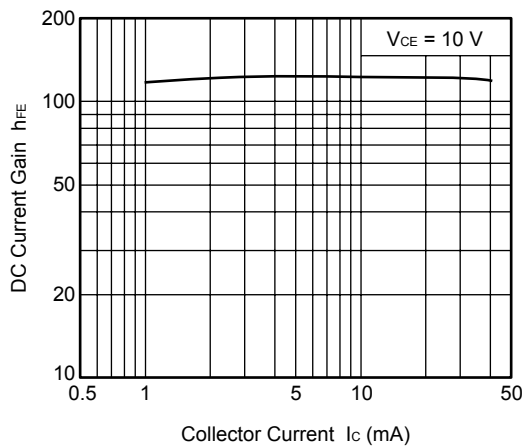
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



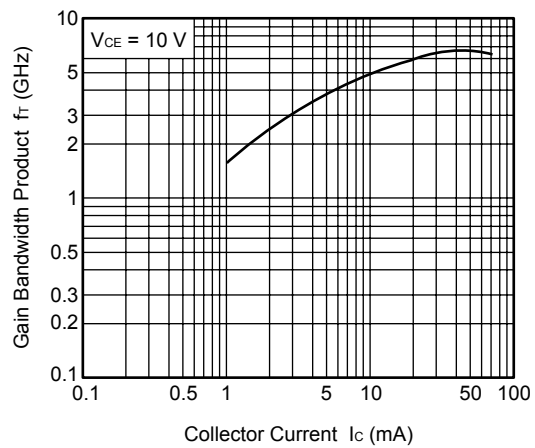
REVERSE TRANSFER CAPACITANCE vs. COLLECTOR TO BASE VOLTAGE



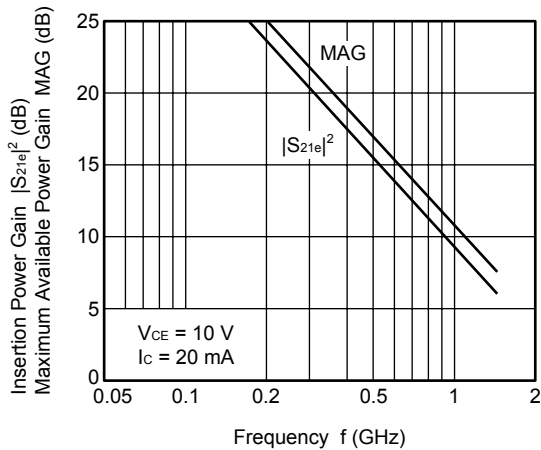
DC CURRENT GAIN vs. COLLECTOR CURRENT



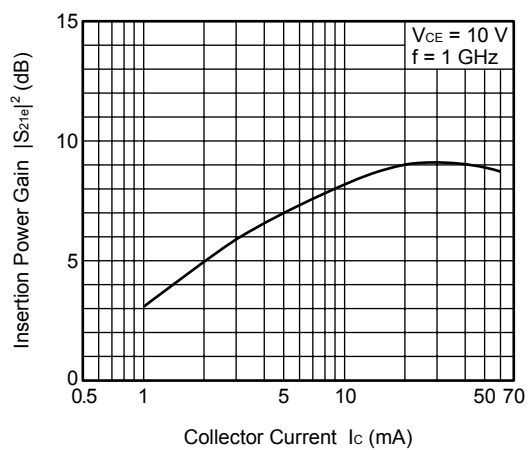
GAIN BANDWIDTH PRODUCT vs. COLLECTOR CURRENT



INSERTION POWER GAIN, MAG vs. FREQUENCY

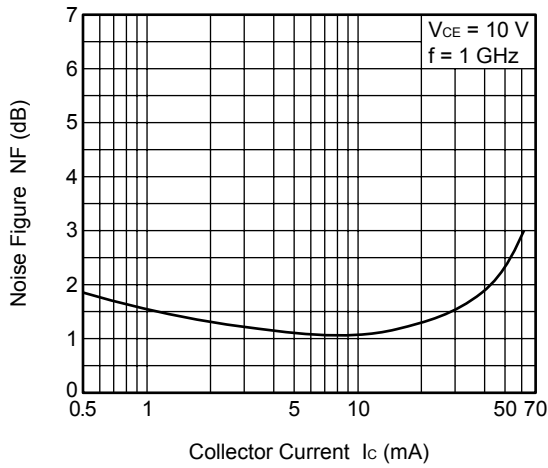


INSERTION POWER GAIN vs. COLLECTOR CURRENT

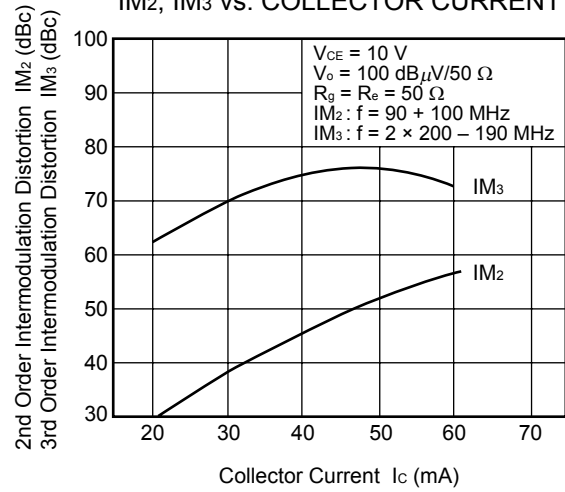


■ Typical Characteristics

NOISE FIGURE vs.
COLLECTOR CURRENT

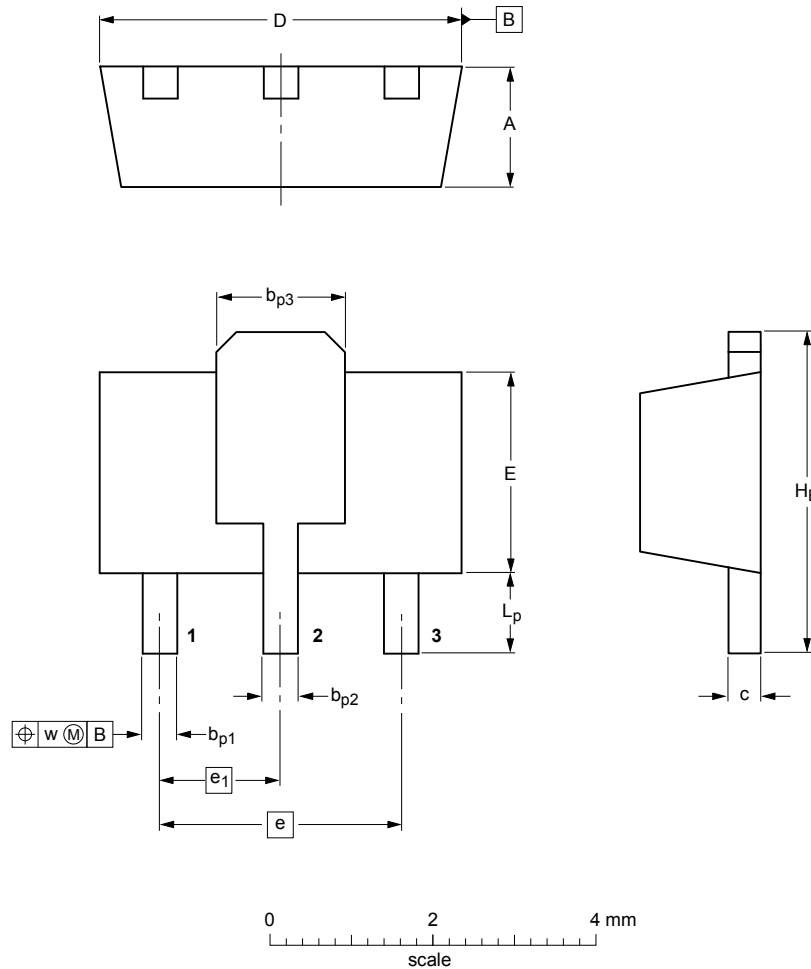


IM₂, IM₃ vs. COLLECTOR CURRENT



Package Outline

SOT-89



DIMENSIONS (mm are the original dimensions)

UNIT	A	b_{p1}	b_{p2}	b_{p3}	c	D	E	e	e_1	H_E	L_p	w
mm	1.6 1.4	0.48 0.35	0.53 0.40	1.8 1.4	0.44 0.23	4.6 4.4	2.6 2.4	3.0	1.5	4.25 3.75	1.2 0.8	0.13

Summary of Packing Options

Package	Package Description	Packing Quantity	Industry Standard
SOT-89	Tape/Reel, 7" reel	1000	EIA-481-1