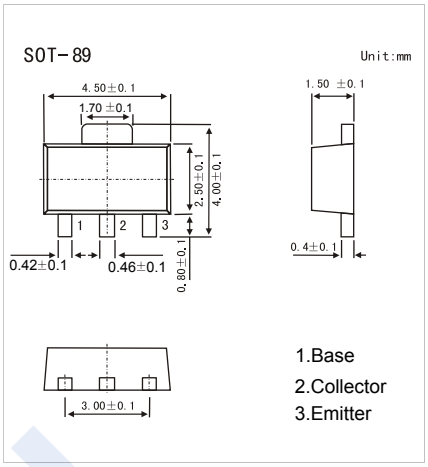
NPN Transistors

2SC3357



■ Features

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

■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CBO}	20	V
Collector - Emitter Voltage	V_{CEO}	12	
Emitter - Base Voltage	V_{EBO}	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	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature Range	T_{stg}	-55 to 150	

■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	V_{CBO}	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_{EBO}	I_E= 100 μA, I_C= 0	3			
Collector-base cut-off current	I_{CBO}	V_{CB}= 20V , I_E= 0			1	uA
Emitter cut-off current	I_{EBO}	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-H	2SC3357-F	2SC3357-E
Range	50-100	80-160	125-250
Marking	RH	RF	RE

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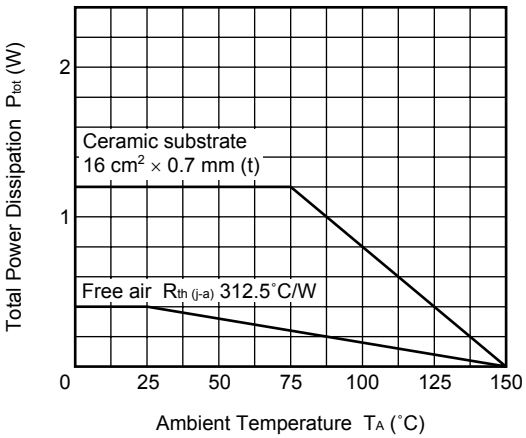
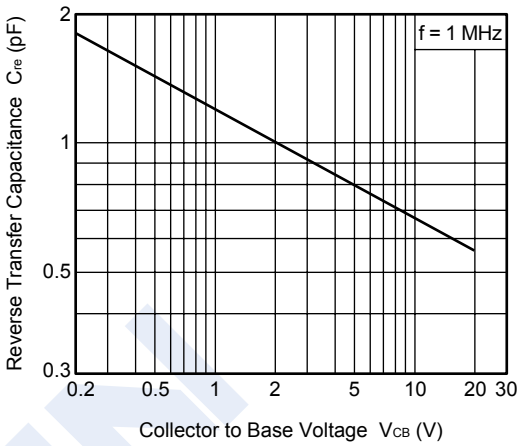
■ Typical Characterisitics

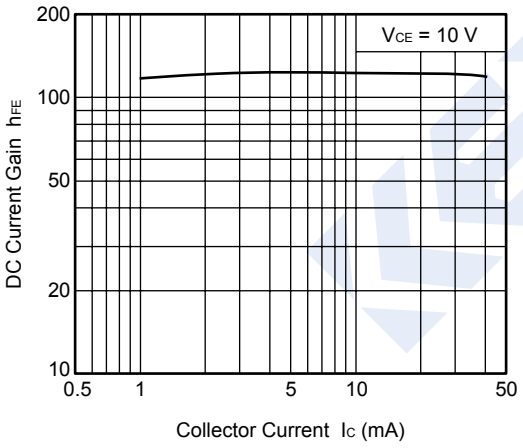
TOTAL POWER DISSIPATION
vs. AMBIENT TEMPERATURE



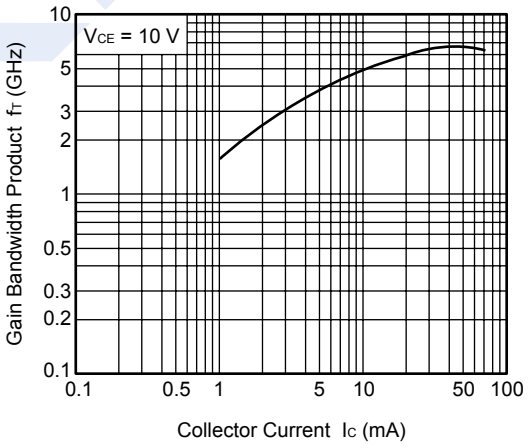
REVERSE TRANSFER CAPACITANCE
vs. COLLECTOR TO BASE VOLTAGE



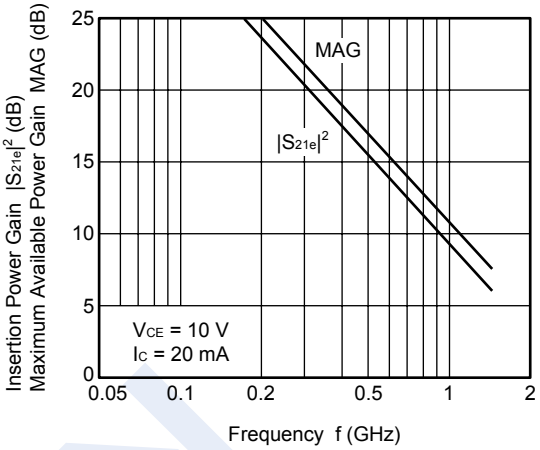
DC CURRENT GAIN vs.
COLLECTOR CURRENT



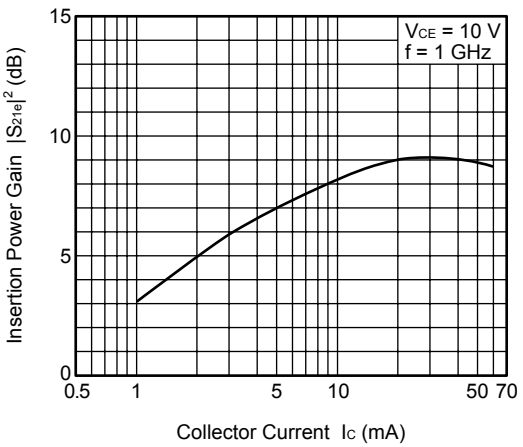
GAIN BANDWIDTH PRODUCT
vs. COLLECTOR CURRENT



INSERTION POWER GAIN, MAG
vs. FREQUENCY



INSERTION POWER GAIN
vs. COLLECTOR CURRENT



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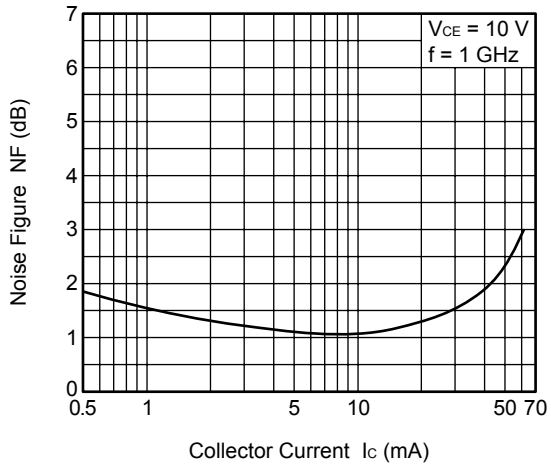
■ Typical Characterisitics

NOISE FIGURE vs.
COLLECTOR CURRENT



IM2, IM3 vs. COLLECTOR CURRENT