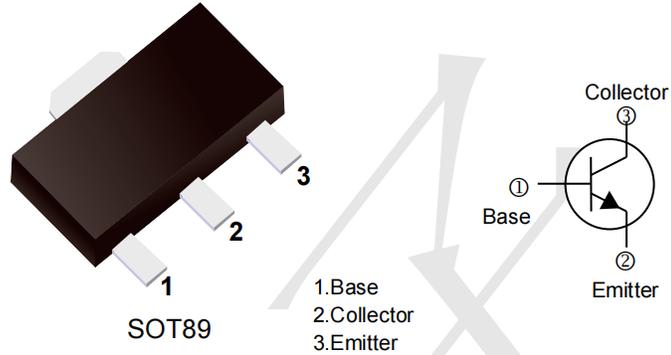


## FEATURES

- Low Noise and High Gain
- High Power Gain

Product-Rank	2SC3357
Range	125~250
Marking	RE



## MAXIMUM RATINGS ( $T_a=25^\circ\text{C}$ unless otherwise noted )

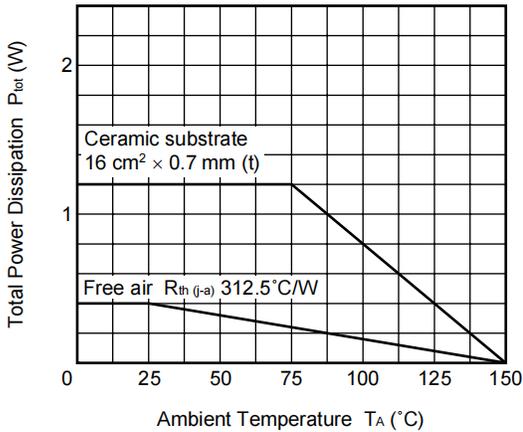
Parameter	Symbol	Ratings	Unit
Collector-Base Voltage	$V_{CB0}$	20	V
Collector-Emitter Voltage	$V_{CEO}$	12	
Emitter-Base Voltage	$V_{EBO}$	3	
Collector Current	$I_C$	0.1	A
Collector Power Dissipation	$P_C$	1.2	W
Thermal Resistance from Junction-Ambient	$R_{\theta JA}$	625	$^\circ\text{C}/\text{W}$
Junction & Storage Temperature	$T_J, T_{STG}$	150, -55~150	$^\circ\text{C}$

## ELECTRICAL CHARACTERISTICS ( $T_a=25^\circ\text{C}$ unless otherwise specified)

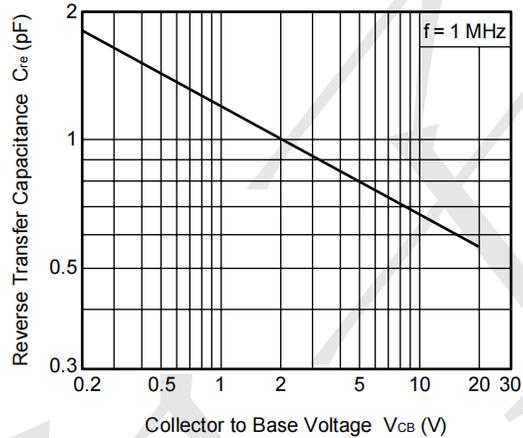
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	$V_{CB0}$	$I_C=100\ \mu\text{A}, I_E=0$	20			V
Collector- emitter breakdown voltage	$V_{CEO}$	$I_C=1\ \text{mA}, I_B=0$	12			
Emitter - base breakdown voltage	$V_{EBO}$	$I_E=100\ \mu\text{A}, I_C=0$	3			
Collector-base cut-off current	$I_{CBO}$	$V_{CB}=20\text{V}, I_E=0$			1	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB}=3\text{V}, I_C=0$			1	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=50\ \text{mA}, I_B=5\ \text{mA}$			0.4	V
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_C=50\ \text{mA}, I_B=5\ \text{mA}$			1.2	
DC current gain (Note.1)	$h_{FE}$	$V_{CE}=10\text{V}, I_C=20\ \text{mA}$	50		250	
Insertion Power Gain	$ S_{21e} ^2$	$V_{CE}=10\text{V}, I_C=20\ \text{mA}, f=1\ \text{GHz}$		9		dB
Noise Figure	NF	$V_{CE}=10\text{V}, I_C=7\ \text{mA}, f=1\ \text{GHz}$		1.1		
		$V_{CE}=10\text{V}, I_C=40\ \text{mA}, f=1\ \text{GHz}$		1.8	3	
Reverse Transfer Capacitance	$C_{re}$	$V_{CB}=10\text{V}, I_E=0, f=1\ \text{MHz}$			1	pF
Transition frequency	$f_T$	$V_{CE}=10\text{V}, I_C=20\ \text{mA}$		6.5		GHz

**Typical Electrical and Thermal Characteristics**

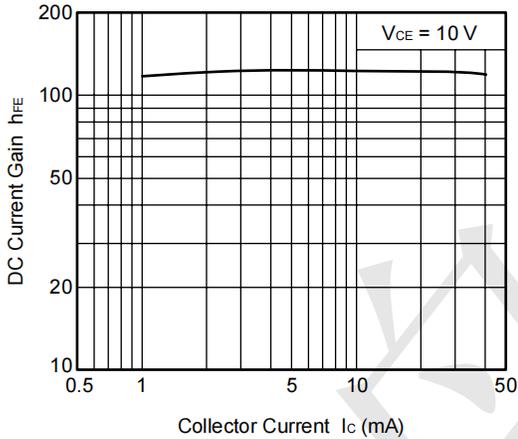
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



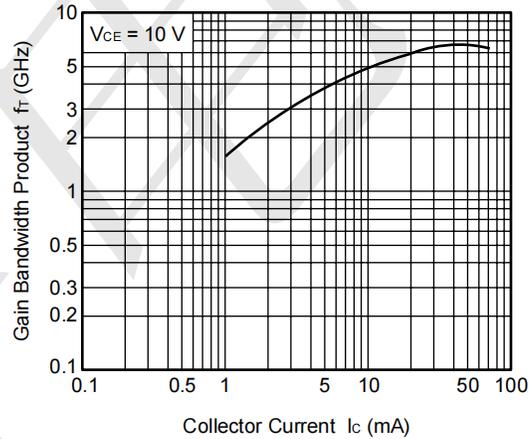
REVERSE TRANSFER CAPACITANCE vs. COLLECTOR TO BASE VOLTAGE



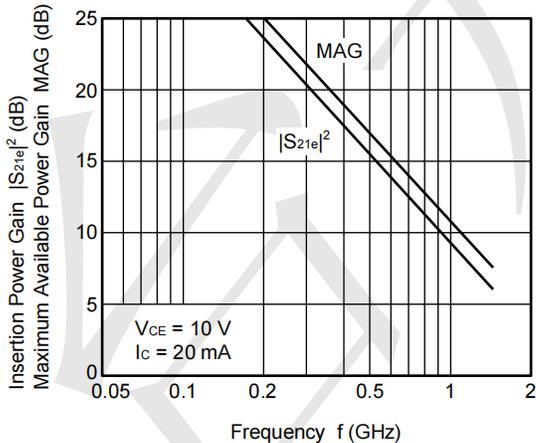
DC CURRENT GAIN vs. COLLECTOR CURRENT



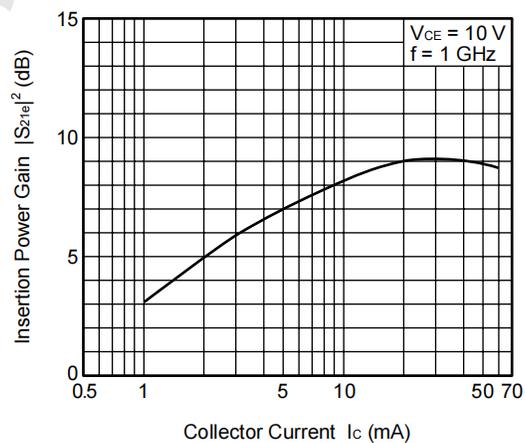
GAIN BANDWIDTH PRODUCT vs. COLLECTOR CURRENT



INSERTION POWER GAIN, MAG vs. FREQUENCY

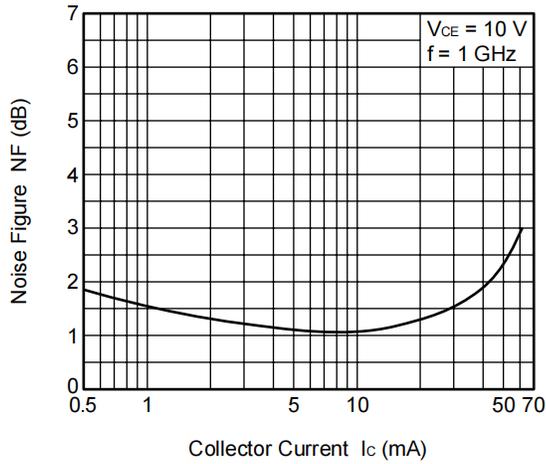


INSERTION POWER GAIN vs. COLLECTOR CURRENT

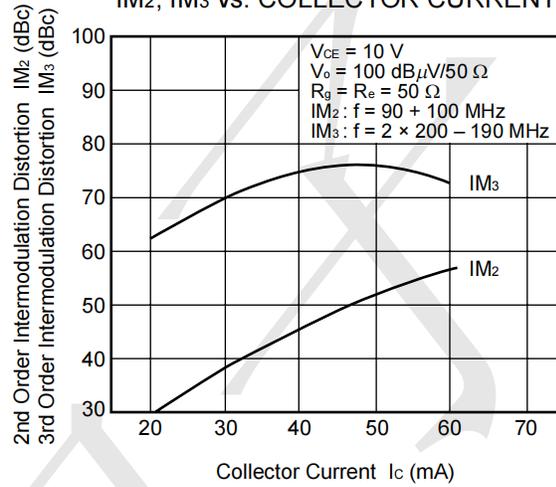




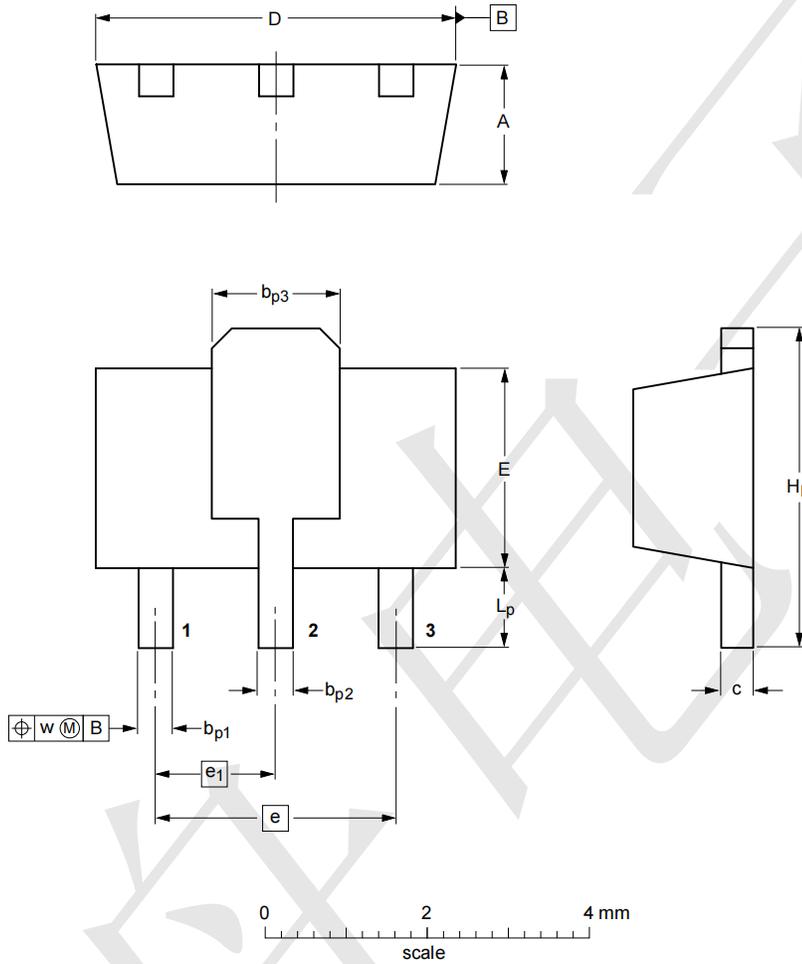
NOISE FIGURE vs.  
COLLECTOR CURRENT



IM<sub>2</sub>, IM<sub>3</sub> vs. COLLECTOR CURRENT



**Package Outline Dimensions (SOT-23)**



**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

**Notes**

1. All dimensions are in millimeters.
2. Tolerance  $\pm 0.10$ mm (4 mil) unless otherwise specified
3. Package body sizes exclude mold flash and gate burrs. Mold flash at the non-lead sides should be less than 5 mils.