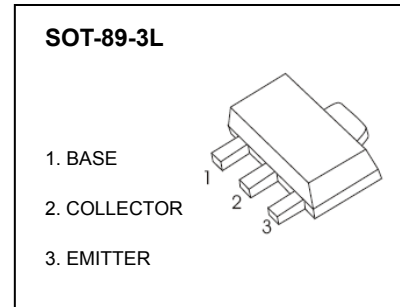


NPN Epitaxial Planar Silicon Transistors

■ Features

- High collector to emitter voltage: $V_{CE0} > 120V$.
- Pb-Free Package May be Available. The G-Suffix Denotes a Pb-Free Lead Finish



■ Absolute Maximum Ratings $T_a = 25^\circ C$

Parameter	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	120	V
Collector-emitter voltage	V_{CEO}	120	V
Emitter-base voltage	V_{EBO}	5	V
Collector current	I_C	0.7	A
Collector current (pulse) *	$I_C (pu)$	1.2	A
Collector power dissipation	P_c	2	W
Junction temperature	T_j	150	$^\circ C$
Storage temperature	T_{stg}	-55 to +150	$^\circ C$

*. $PW \leq 10ms, duty\ cycle \leq 50\%$

■ Electrical Characteristics $T_a = 25^\circ C$

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	V_{CBO}	$I_C = 100 \mu A, I_E = 0$	120			V
Collector- emitter breakdown voltage	V_{CEO}	$I_C = 1 mA, I_B = 0$	120			
Emitter - base breakdown voltage	V_{EBO}	$I_E = 100 \mu A, I_C = 0$	5			
Collector-base cut-off current	I_{CBO}	$V_{CB} = 120 V, I_E = 0$			0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 5V, I_C = 0$			0.1	
Collector-emitter saturation voltage *	$V_{CE(sat)}$	$I_C = 500 mA, I_B = 50mA$			0.6	V
Base - emitter saturation voltage *	$V_{BE(sat)}$	$I_C = 500 mA, I_B = 50mA$			1.5	
Base - emitter voltage *	V_{BE}	$V_{CE} = 10V, I_C = 10mA$	0.55		0.68	
DC current gain *	h_{FE}	$V_{CE} = 1V, I_C = 5mA$	45	200		
		$V_{CE} = 1V, I_C = 100mA$	90	200	400	
Collector output capacitance	C_{ob}	$V_{CB} = 10V, I_E = 0, f = 1MHz$		10		pF
Transition frequency	f_T	$V_{CE} = 10V, I_C = 10mA$		90		MHz

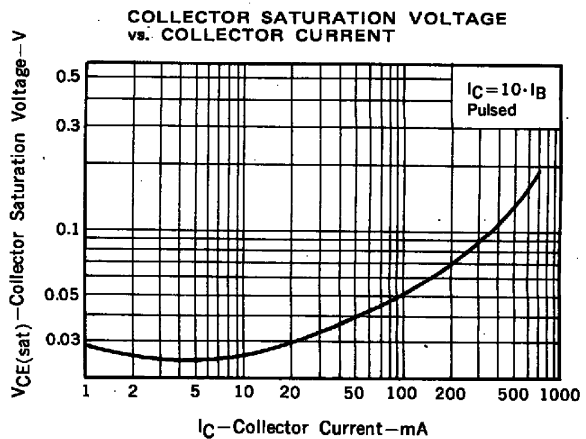
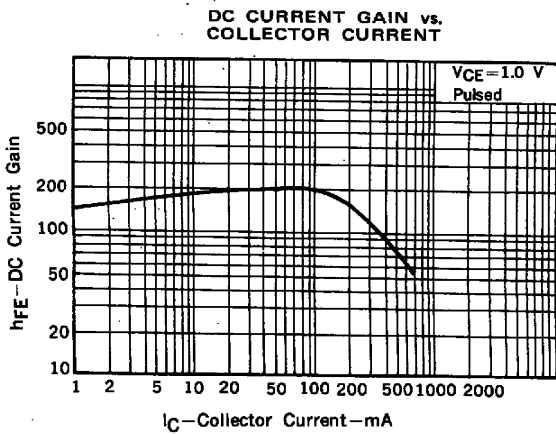
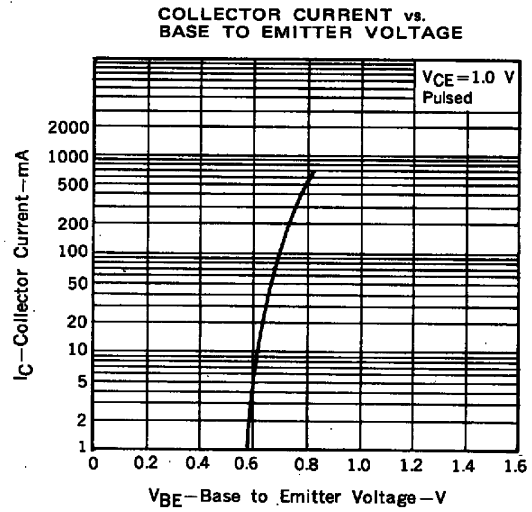
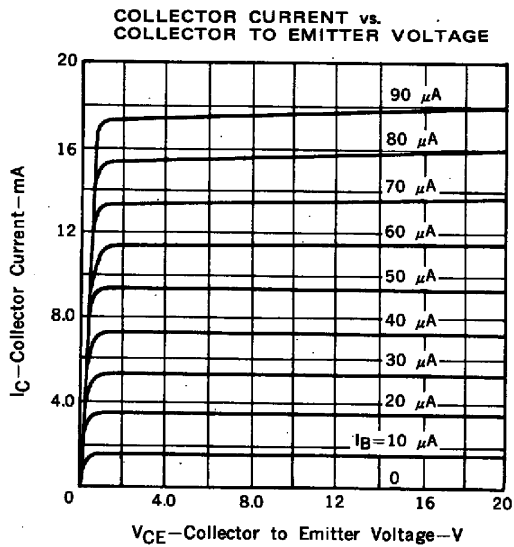
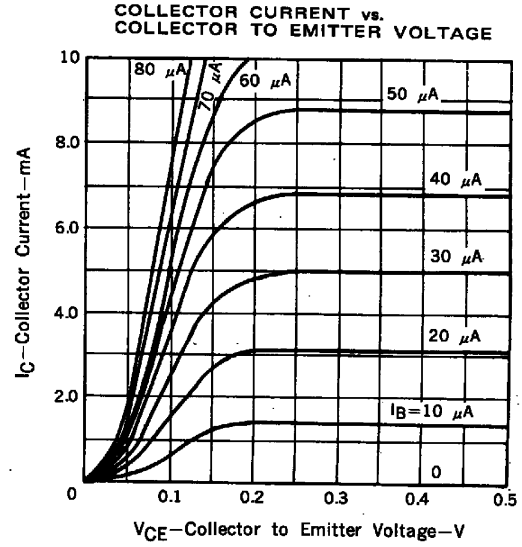
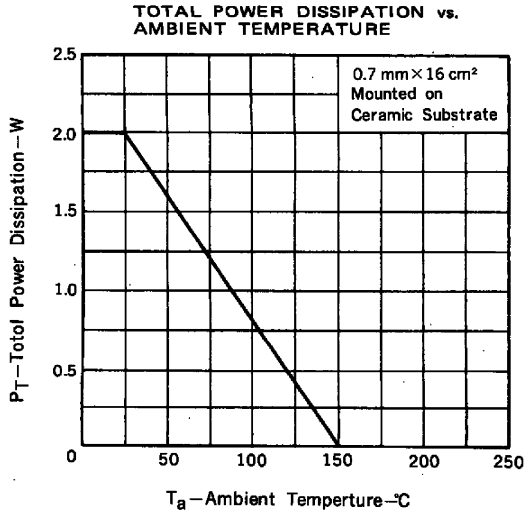
*. $PW \leq 350\mu s, duty\ cycle \leq 2\%$

■ h_{FE} Classification(2)

Type	2SD1007-R	2SD1007-Q	2SD1007-P
Range	90-180	135-270	200-400
Marking	HR	HQ	HP



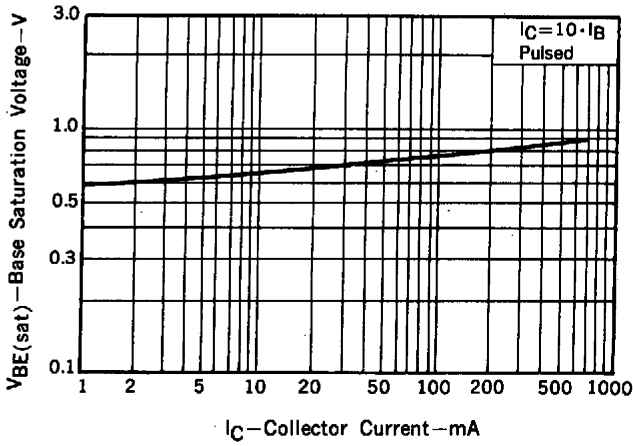
Typical Characteristics



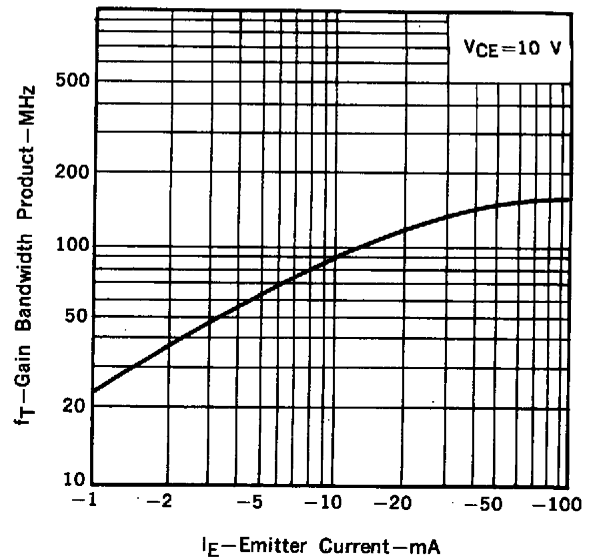


Typical Characteristics

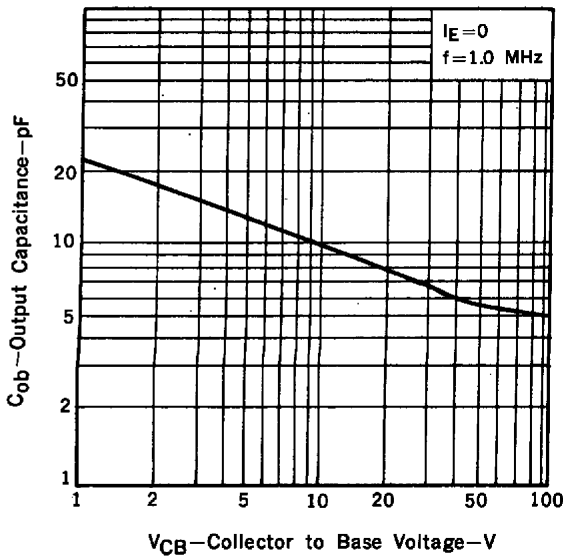
BASE SATURATION VOLTAGE vs. COLLECTOR CURRENT



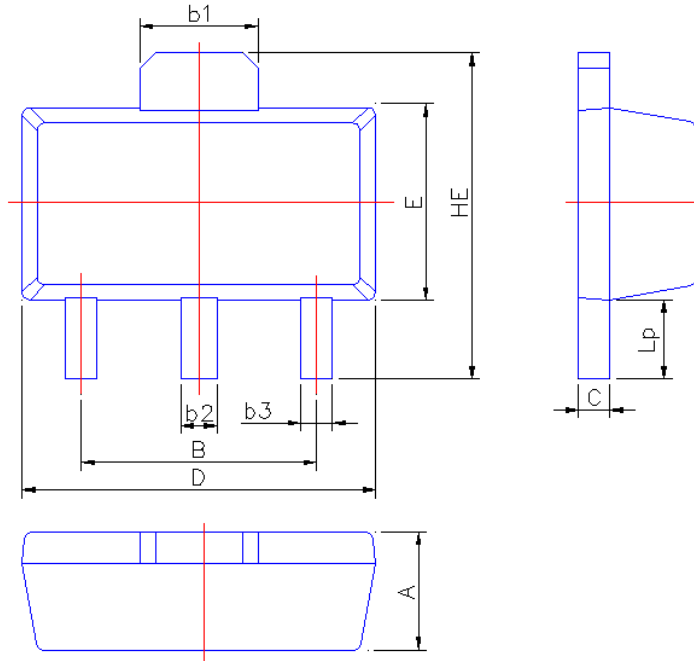
GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT



OUTPUT CAPACITANCE vs. REVERSE VOLTAGE



SOT-89 PACKAGE OUTLINE



Symbol	Dimension in Millimeters	
	Min	Max
A	1.40	1.60
B	2.95	3.05
b1	1.45	1.70
b2	0.45	0.56
b3	0.35	0.50
C	0.35	0.50
D	4.40	4.60
E	2.35	2.55
HE	3.90	4.40
Lp	0.90	1.10