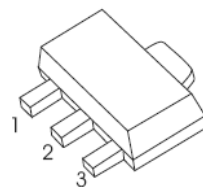


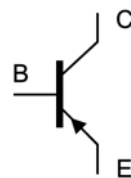
GSBCX51-52-53 PNP Transistors

Features

- NPN complements to GSBCX54, GSBCX55, GSBCX56
- Low voltage
- High current



SOT-89-3L



Schematic Diagram

Applications

- Medium power general purposes
- Driver stages of audio amplifiers

1. BASE
2. COLLECTOR
3. EMITTER

Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

Parameter		Symbol	Value	Unit
Collector-Base Voltage	GSBCX51	V _{CBO}	-45	V
	GSBCX52		-60	
	GSBCX53		-100	
Collector- Emitter Voltage	GSBCX51	V _{CEO}	-45	V
	GSBCX52		-60	
	GSBCX53		-80	
Emitter-Base Voltage		V _{EBO}	-5	V
Collector Current		I _C	-1	A
Collector Power Dissipation		P _C	500	mW
Thermal Resistance from Junction to Ambient		R _{θJA}	250	°C/W
Junction Temperature		T _J	-55 to +150	°C
Storage Temperature		T _{STG}	-55 to +150	°C

Electrical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=-100\mu A, I_E=0$	GSBCX51	-45	-	-	V
			GSBCX52	-60	-	-	
			GSBCX53	-100	-	-	
Collector-Emitter Breakdown Voltage ¹	$V_{(BR)CEO}$	$I_C=-10mA, I_B=0$	GSBCX51	-45	-	-	V
			GSBCX52	-60	-	-	
			GSBCX53	-80	-	-	
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=-100\mu A, I_C=0$		-5	-	-	V
Collector Cut-Off Current	I_{CBO}	$V_{CB}=-30V, I_E=0$		-	-	-0.1	μA
Emitter Cut-Off Current	I_{EBO}	$V_{EB}=-5V, I_C=0$		-	-	-0.1	μA
DC Current Gain ¹	$h_{FE(1)}$	$V_{CE}=-2V, I_C=-5mA$		63	-	-	-
	$h_{FE(2)}$	$V_{CE}=-2V, I_C=-150mA$		63	-	250	-
	$h_{FE(3)}$	$V_{CE}=-2V, I_C=-0.5A$		40	-	-	-
Collector-Emitter Saturation Voltage ¹	$V_{CE(sat)}$	$I_C=-0.5A, I_B=-50mA$		-	-	-0.5	V
Base -Emitter Voltage ¹	V_{BE}	$V_{CE}=-2V, I_C=-0.5A$		-	-	-1	V
Transition Frequency	f_T	$V_{CE}=-5V, I_C=-10mA, f=100MHz$		-	50	-	MHz

Note:

1. Pulse Test

Classification of $h_{FE(2)}$

Rank	GSBCX51 GSBCX52 GSBCX53	GSBCX51-10 GSBCX52-10 GSBCX53-10	GSBCX51-16 GSBCX52-16 GSBCX53-16
h_{FE} Range	63 - 250	63 - 160	100 - 250

Electrical Characteristic Curves

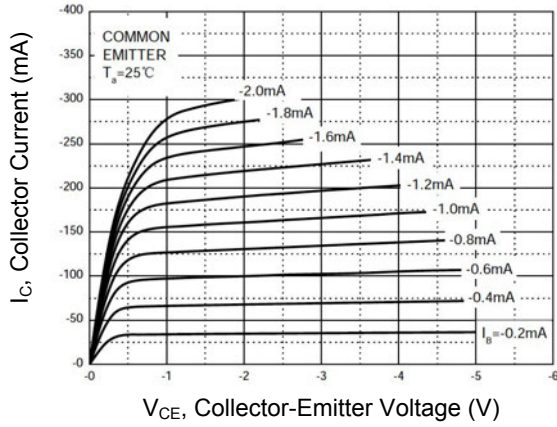


Figure 1. Static Characteristic

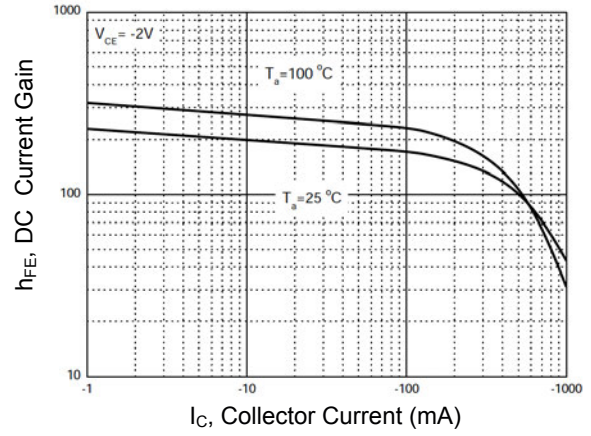


Figure 2. $h_{FE} - I_C$

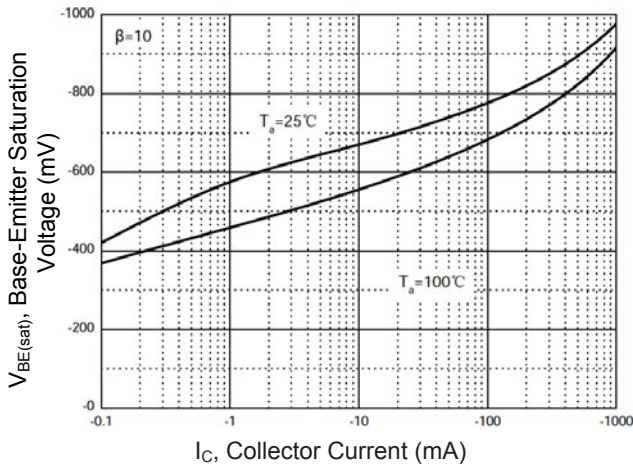


Figure 3. $V_{BE(sat)} - I_C$

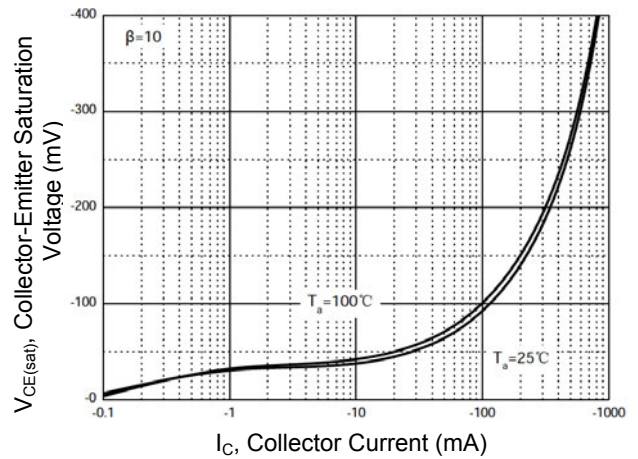


Figure 4. $V_{CE(sat)} - I_C$

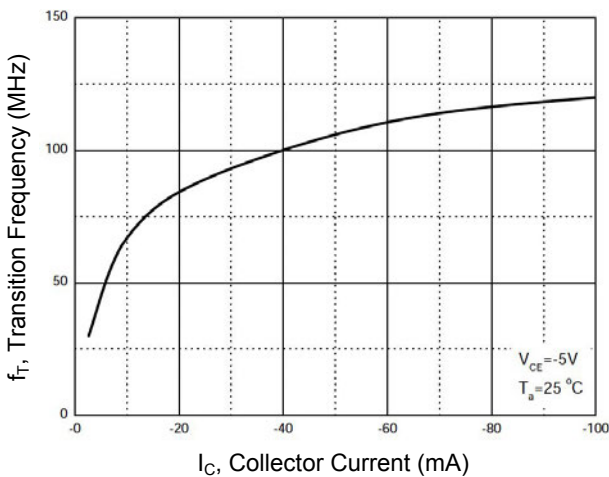


Figure 5. $f_T - I_C$

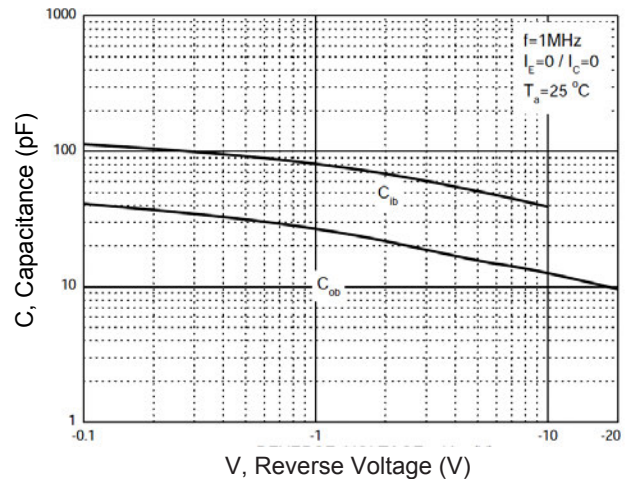


Figure 6. $C_{ob}/C_{ib} - V_{CB}/V_{EB}$

Electrical Characteristic Curves

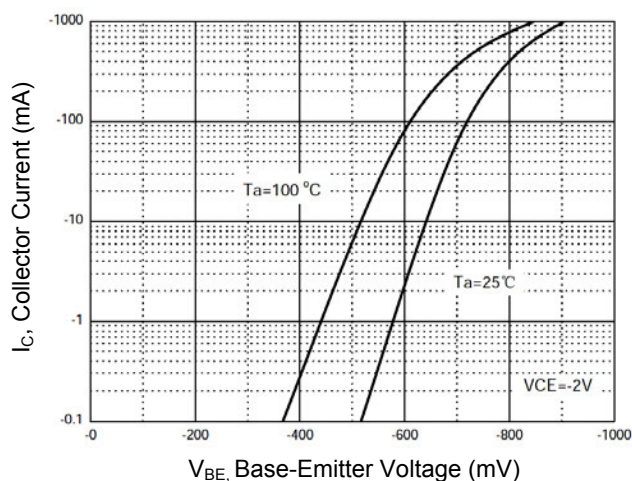


Figure 7. $I_C - V_{BE}$

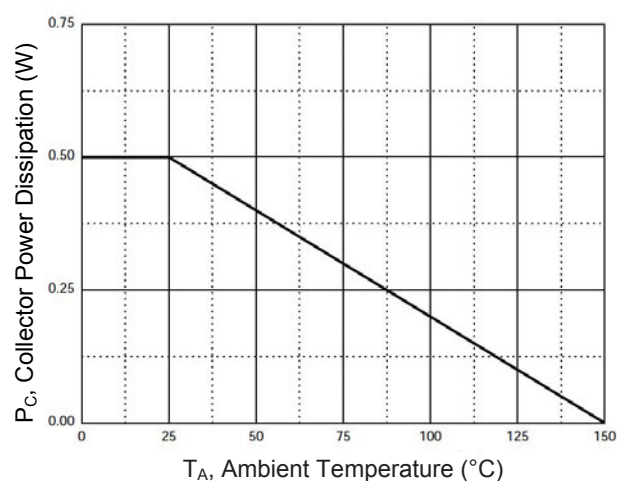
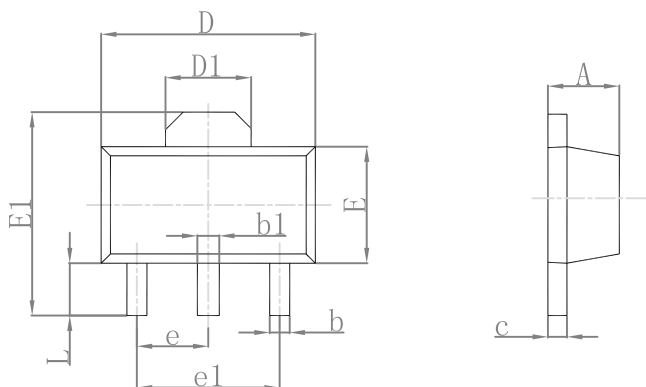


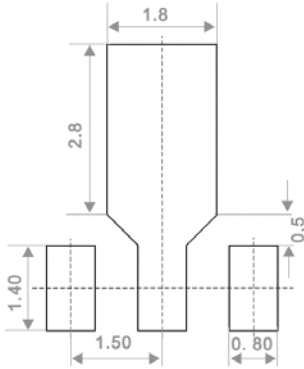
Figure 8. $P_C - T_A$

Package Outline Dimensions (SOT-89-3L)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.30	1.70	0.051	0.067
b	0.30	0.52	0.012	0.020
b1	0.38	0.58	0.015	0.023
c	0.30	0.50	0.012	0.020
D	4.30	4.70	0.169	0.185
D1	1.65 REF.		0.065 REF.	
E	2.25	2.65	0.089	0.104
E1	3.94	4.35	0.155	0.171
e	1.50 TYP.		0.059 TYP.	
e1	3.00 TYP.		0.118 TYP.	
L	0.90	1.20	0.035	0.047

Recommended Pad Layout



Note:

1. Controlling dimension: in millimeters
2. General tolerance: $\pm 0.05\text{mm}$
3. The pad layout is for reference purposes only

Order Information

Device	Package	Marking	Quality	HSF Status
GSBCX51	SOT-89-3L	AA	1,000pcs/Reel	RoHS Compliant
GSBCX51-10	SOT-89-3L	AC	1,000pcs/Reel	RoHS Compliant
GSBCX51-16	SOT-89-3L	AD	1,000pcs/Reel	RoHS Compliant
GSBCX52	SOT-89-3L	AE	1,000pcs/Reel	RoHS Compliant
GSBCX52-10	SOT-89-3L	AG	1,000pcs/Reel	RoHS Compliant
GSBCX52-16	SOT-89-3L	AM	1,000pcs/Reel	RoHS Compliant
GSBCX53	SOT-89-3L	AH	1,000pcs/Reel	RoHS Compliant
GSBCX53-10	SOT-89-3L	AK	1,000pcs/Reel	RoHS Compliant
GSBCX53-16	SOT-89-3L	AL	1,000pcs/Reel	RoHS Compliant