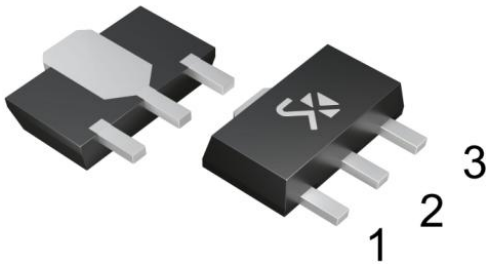
BCX51/52/53

PNP Silicon Epitaxial Planar Transistor

Features

- IC = -1A
- Continuous collector current saturation voltage
- VCE(sat)<-500mV@-0.5A
- Obtain complementary NPN Types for the 10th and 16th epitaxial plane mold
- Complementary types: BCX54,BCX55,BCX56

SOT-89



1.BASE
2.COLLECTOR
3.EMITTER

Applications

- Medium power switching or amplification applications: Autofocus drive and output stage

Absolute Maximum Ratings (T_A=25℃ unless otherwise noted)

Parameter	Symbol	BCX51	BCX52	BCX53	Unit
Collector-Base Voltage	V_{CBO}	-45	-60	-100	V
Collector-Emitter Voltage	V_{CEO}	-45	-60	-80	V
Emitter-Base Voltage	V_{EBO}	-5			V
Collector Current -Continuous	I_C	-1.0			A
Peak Current of Collector	I_{CM}	-1.5			A
Continuous Base Current	I_B	-100			mA
Base Peak Current	I_{BM}	-200			mA
Power Dissipation	P_D	1.0			W
Junction Temperature	T_J	-65~+150			℃
Storage Temperature	T_{STG}	-65~+150			℃
Thermal Resistance In Paired Environments	$R_{\theta JA}$	124			℃/W
Thermal Resistance,Connected to Leads	$R_{\theta JL}$	10			℃/W

Electrical Characteristics (T_A=25℃, unless otherwise specified)

Parameter	Symbol	Test conditions		Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C = -100μA, I_E = 0	BCX51	-45			V
			BCX52	-60			
			BCX53	-100			
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C = -10mA, I_B = 0	BCX51	-45			V
			BCX52	-60			
			BCX53	-80			
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E = -100μA, I_C = 0		-5			V
DC current gain	h_{FE}	V_{CE} = -2V, I_C = -5mA		25			
		V_{CE} = -2V, I_C = -150mA		40		250	
		V_{CE} = -2V, I_C = -500mA		25			
10 gain GRP		V_{CE} = -2V, I_C = -150mA		63		160	
16 gain GRP		V_{CE} = -2V, I_C = -150mA		100		250	
Collector cut-off current	I_{CBO}	V_{CB} = -30V, I_E = 0		-0.1			μA
		V_{CB} = -30V, I_E = 0, T_J=150℃		-20			μA
Emitter cut-off current	I_{EBO}	V_{EB} = -5V, I_C = 0		-0.1			μA
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C = -500mA, I_B = -50mA				-0.5	V
Base-emitter saturation voltage	$V_{BE(sat)}$	I_C = -500mA, I_B = -50mA				-1.2	V
Base-emitter voltage	$V_{BE(on)}$	V_{CE} = -2V, I_C = -500mA				-1.0	V
Transition frequency	f_T	V_{CE} = -10V, I_C = -50mA, f = 100MHz		150			MHz
Output capacitance	C_{ob}	VCB = -10V, IE = 0, f = 1MHz				25	pF

Typical Characteristics

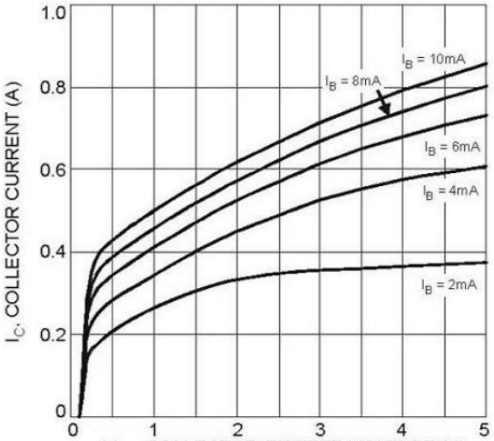


Fig. 1 Typical Collector Current
vs. Collector-Emitter Voltage

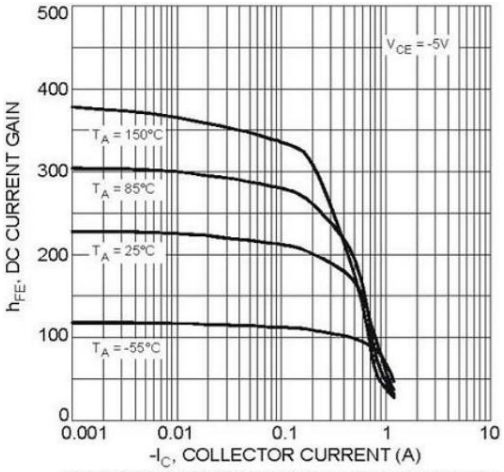


Fig. 2 Typical DC Current Gain vs. Collector Current

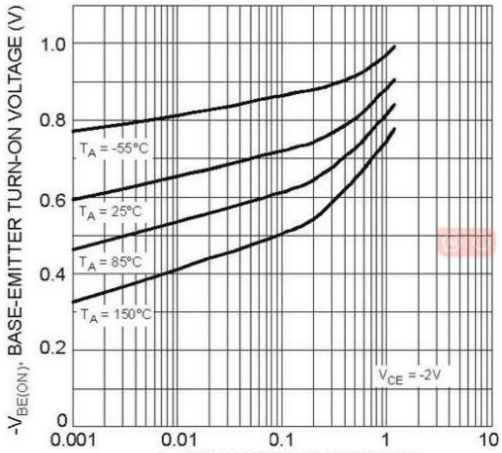


Fig 3 Typical Base-Emitter Turn-On Voltage
vs. Collector Current

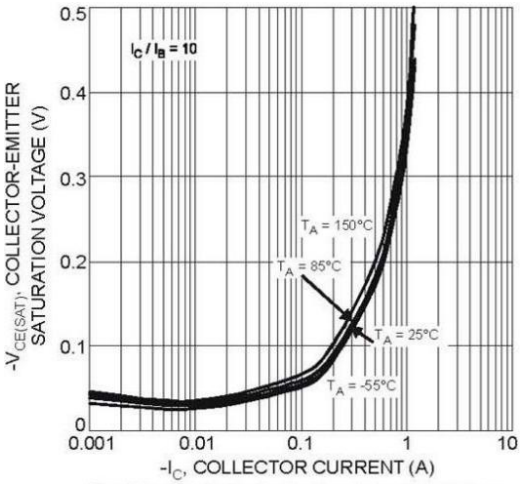


Fig. 4 Typical Collector-Emitter Saturation Voltage
vs. Collector Current

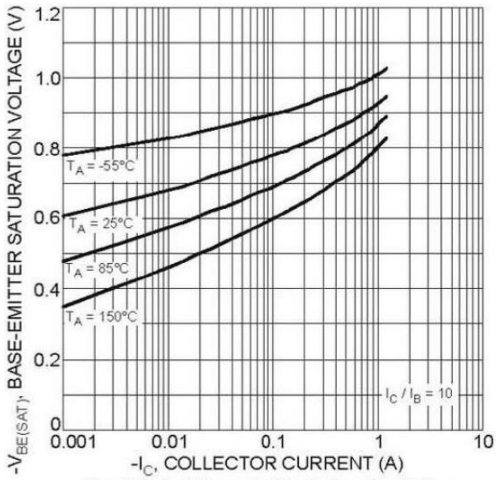


Fig. 5 Typical Base-Emitter Saturation Voltage
vs. Collector Current

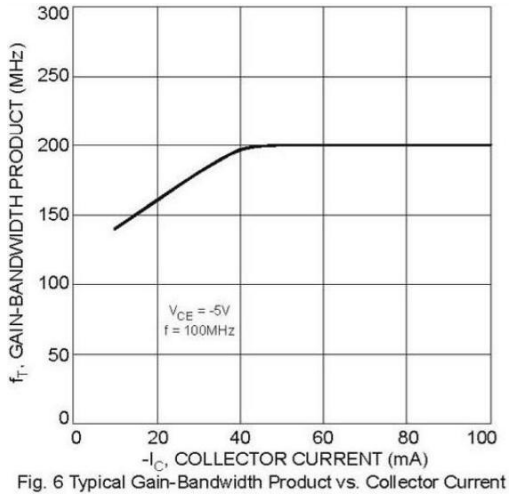


Fig. 6 Typical Gain-Bandwidth Product vs. Collector Current

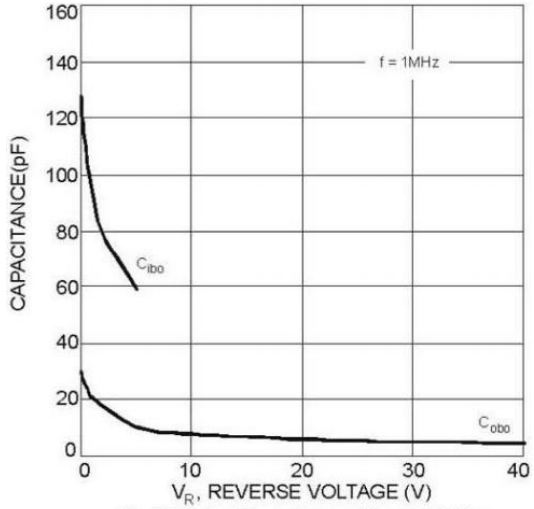
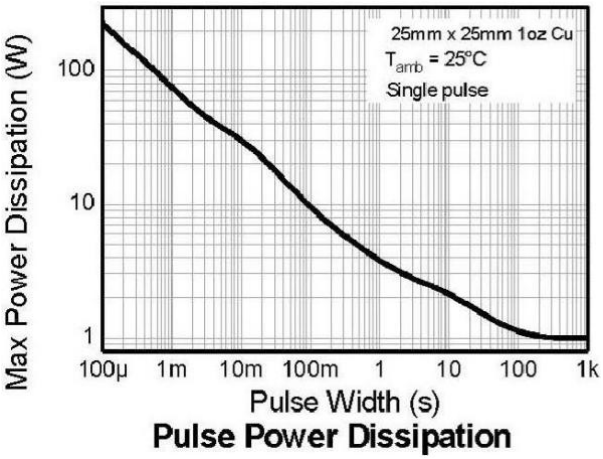
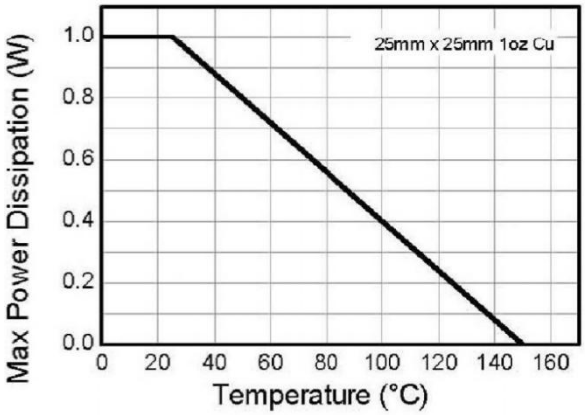


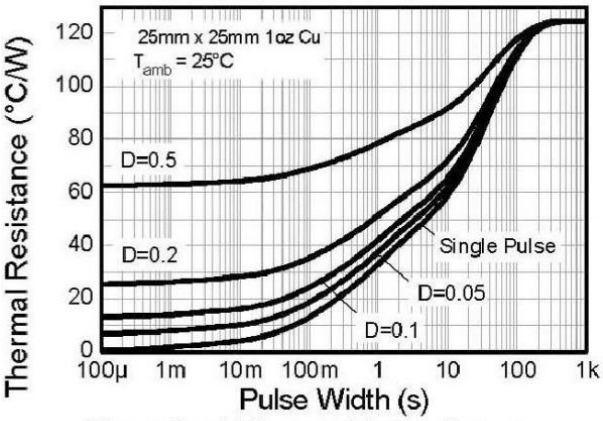
Fig. 7 Typical Capacitance Characteristics



Pulse Power Dissipation



Derating Curve

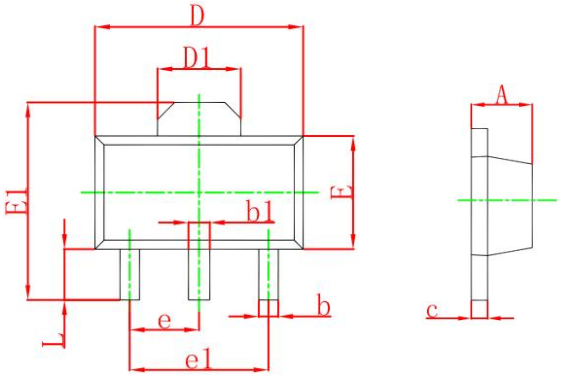


Transient Thermal Impedance

Package Information

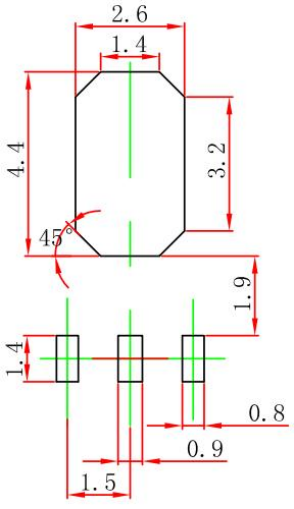
SOT-89

Dimensions in mm



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	43400	4.600	0.173	0.181
D1	1.550 REF.		0.061 REF.	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP.		0.060 TYP.	
e1	3.000 TYP.		0.118 TYP.	
L	0.900	1.200	0.035	0.047

Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters
2.General tolerance:±0.05mm
3.The pad layout is for reference purpose only

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