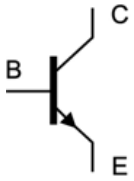
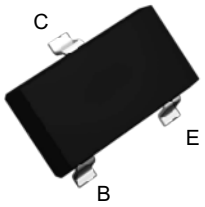
GSBC817W Series
NPN Transistors

Feature

- Epoxy meets UL 94V-0 flammability rating
- Small outline surface mount package
- Low current leakage
- For high-speed switching applications



Schematic Diagram



SOT-323

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

Parameter	Symbol	Max.	Unit
Collector-Base Voltage	V_{CBO}	50	V
Collector-Emitter Voltage	V_{CEO}	45	V
Emitter-Base Voltage	V_{EBO}	5.0	V
Collector Current-Continuous	I_C	500	mA
Collector Power Dissipation	P_C	200	mW
Thermal Resistance From Junction To Ambient	$R_{\theta JA}$	625	°C/W
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 To +150	°C

$h_{FE(1)}$ Classifications

Rank	GSBC817-16W	GSBC817-25W	GSBC817-40W
Range	100-250	160-400	250-600
Marking	6A	6B	6C

Electrical Characteristics (T_A=25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=10μA, I_E=0	50	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=10mA, I_B=0	45	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=1μA, I_C=0	5	-	-	V
Collector Cut-off Current	I_{CBO}	V_{CB}=20V, I_E=0	-	-	0.1	μA
Emitter Cut-off Current	I_{EBO}	V_{EB}=5V, I_C=0	-	-	0.1	μA
DC Current Gain	$h_{FE(1)}$	V_{CE}=1V, I_C=100mA	100	-	600	-
	$h_{FE(2)}$	V_{CE}=1V, I_C=500mA	40	-	-	-
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=500mA, I_B=50mA	-	-	1.2	V
Base-Emitter Voltage	$V_{BE(ON)}$	V_{CE}=1V, I_C= 500mA	-	-	1.2	V
Transition Frequency	f_T	V_{CE}=5V, I_C=10mA, f=100MHz	100	-	-	MHz
Collector Output Capacitance	C_{ob}	V_{CB}=10V, f=1MHz	-	-	10	pF

Typical Characteristic Curves

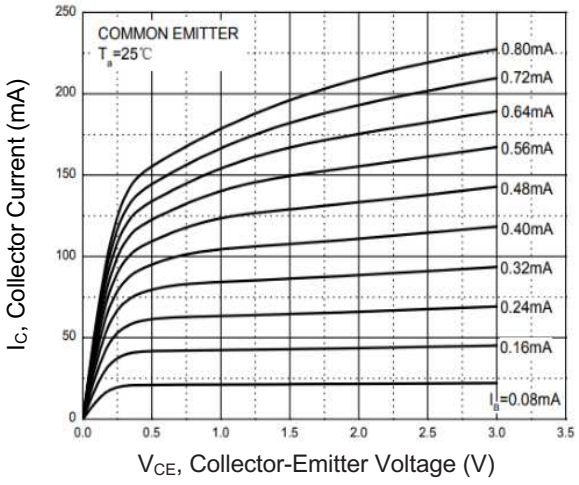


Figure 1. Static Characteristics

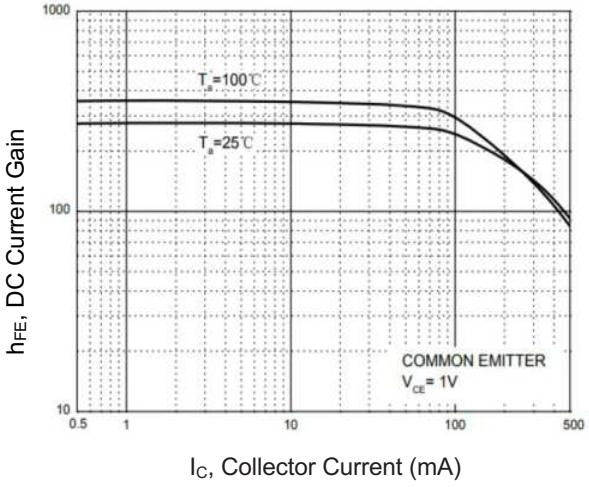


Figure 2. DC Current Gain

Typical Characteristic Curves

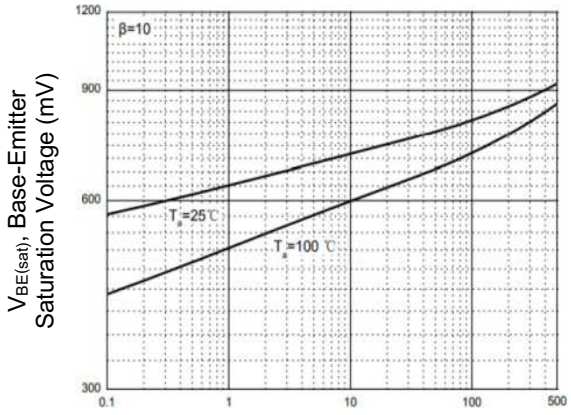


Figure 3. Base-Emitter Saturation Voltage vs. Collector Current

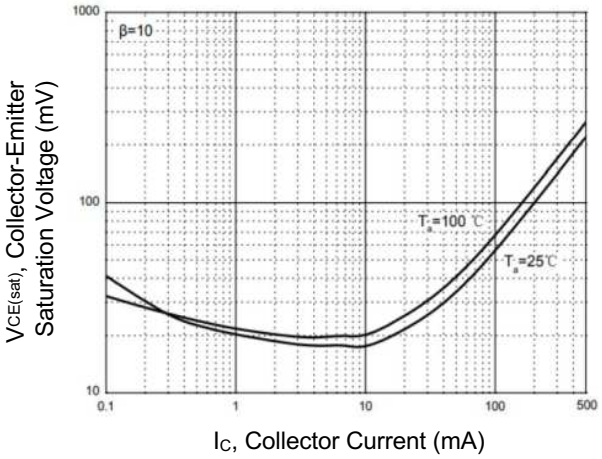


Figure 4. Collector-Emitter Saturation Voltage vs. Collector Current

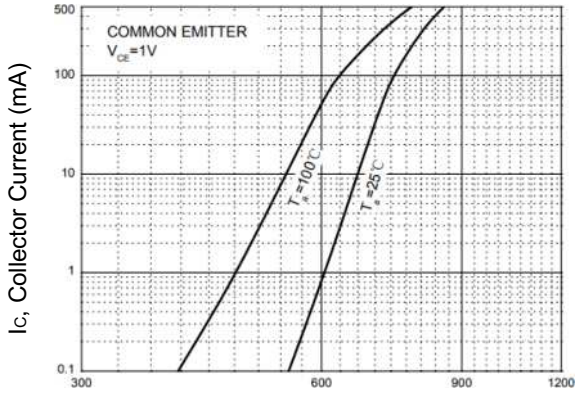


Figure 5. Collector Current vs. Base-Emitter Voltage

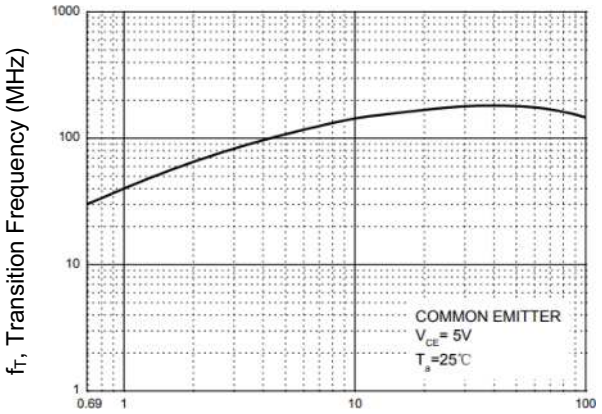


Figure 6. Transition Frequency vs. Collector Current

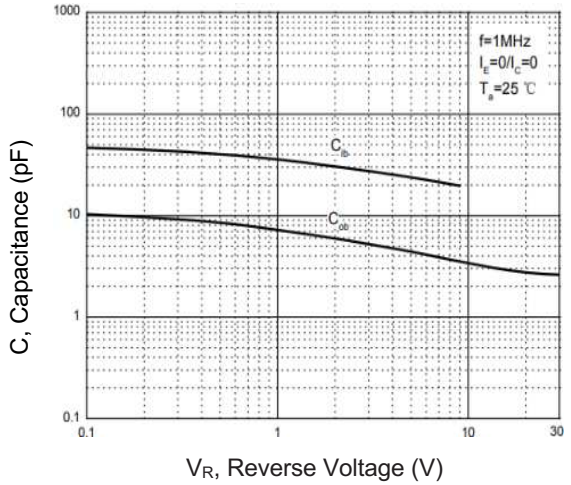


Figure 7. Capacitance Characteristics

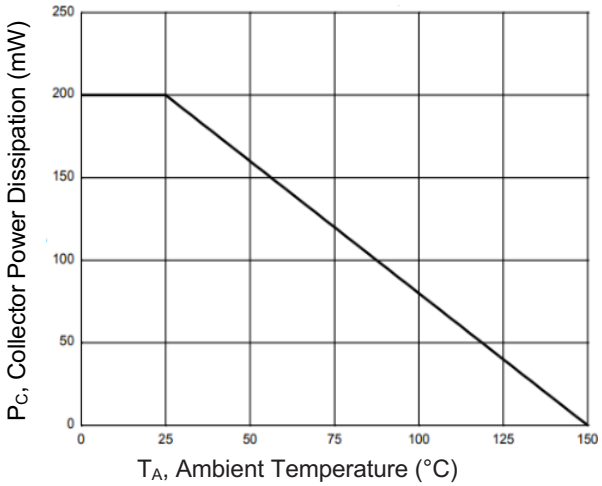
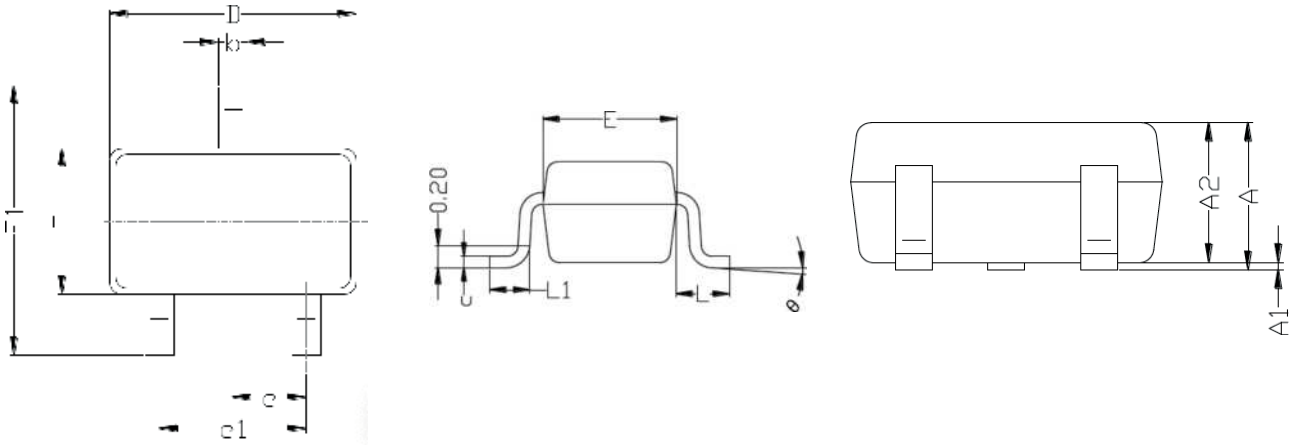


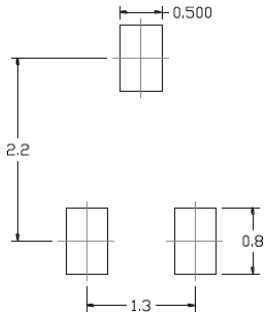
Figure 8. Power Derating

Package Outline Dimensions (SOT-323)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.90	1.00	0.035	0.039
A1	0.00	0.10	0.000	0.004
A2	0.90	1.00	0.035	0.039
b	0.20	0.40	0.008	0.016
c	0.08	0.15	0.003	0.006
D	2.00	2.20	0.079	0.087
E	1.15	1.35	0.045	0.053
E1	2.15	2.45	0.085	0.096
e	0.650 TYP		0.026 TYP	
e1	1.20	1.40	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.26	0.46	0.010	0.018
θ	0°	8°	0°	8°

Recommended Pad Layout



Note:

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

Order Information

Device	Package	Carrier	Quantity
GSBC817W Series	SOT-323	Tape & Reel	3,000 Pcs / Reel