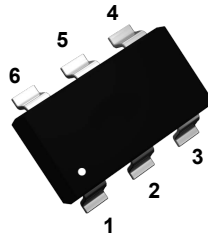


GSBC846BDW

Dual NPN Transistor

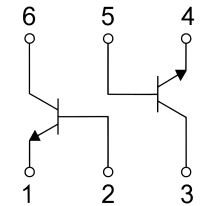
Features

- Two transistors in one package
- High stability and high reliability



SOT-363

1. Emitter1
2. Base1
3. Collector2
4. Emitter2
5. Base2
6. Collector1



Schematic Diagram

Mechanical Data

- SOT-363 small outline plastic package
- Epoxy UL: 94V-0

Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector Base Voltage	V_{CBO}	80	V
Collector Emitter Voltage	V_{CEO}	65	V
Emitter Base Voltage	V_{EBO}	6	V
Collector Current	I_C	100	mA
Peak Collector Current	I_{CM}	200	mA
Total Power Dissipation	P_{tot}	250	mW
Thermal Resistance from Junction Ambient ¹	$R_{\theta JA}$	500	$^{\circ}\text{C/W}$
Thermal Resistance from Junction Ambient ²	$R_{\theta JA}$	335	
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature Range	T_{stg}	-55 to +150	$^{\circ}\text{C}$

Note:

- Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.
- Device mounted on FR-4 substrate PC board, 2oz copper, with 1-inch square copper plate in still air.

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

Parameter	Symbol	Test Conditions	Min.	Max.	Unit
DC Current Gain	h_{FE}	$V_{CE}=5V, I_C=2mA$	200	450	-
Collector Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=10\mu A$	80	-	V
Collector Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=10mA$	65	-	V
Emitter Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=1\mu A$	6	-	V
Collector Base Cutoff Current	I_{CBO}	$V_{CB}=30V$	-	15	nA
Emitter Base Cutoff Current	I_{EBO}	$V_{EB}=5V$	-	100	nA
Collector Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=10mA, I_B=0.5mA$	-	0.25	V
		$I_C=100mA, I_B=5mA$	-	0.6	
Base Emitter Turn-On Voltage	$V_{BE(on)}$	$V_{CE}=5V, I_C=2mA$	0.58	0.7	V
		$V_{CE}=5V, I_C=10mA$	-	0.77	
Transition Frequency	f_T	$V_{CE}=5V, I_C=10mA, F=100MHz$	100	-	MHz
Collector Output Capacitance	C_{ob}	$V_{CB}=10V, F=1MHz$	-	4.5	pF

Electrical Characteristic Curves

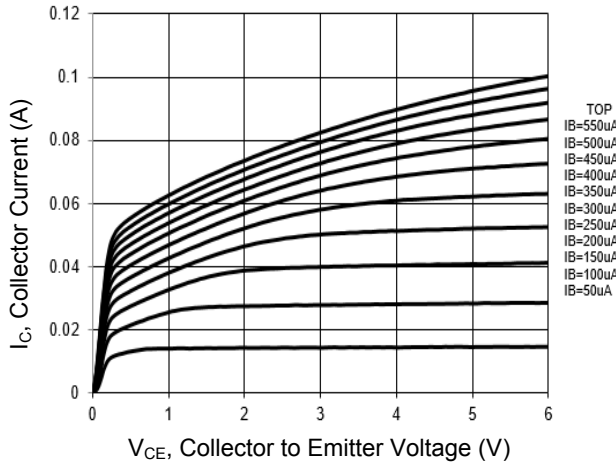


Figure 1. Output Characteristics Curve

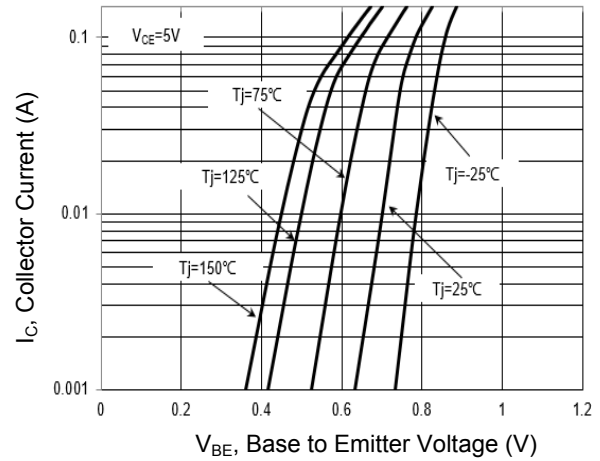


Figure 2. Collector Current vs. Base to Emitter Voltage

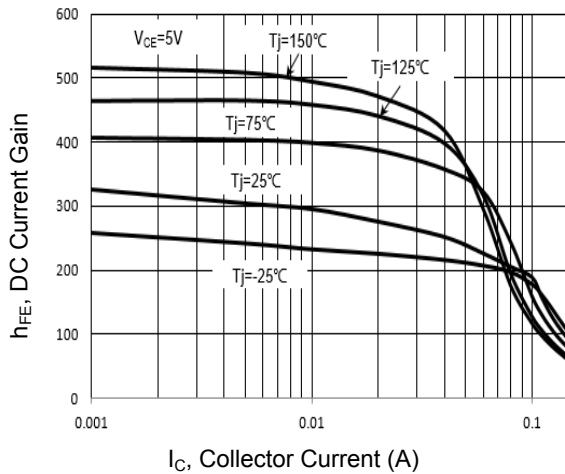


Figure 3. DC Current Gain vs. Collector Current

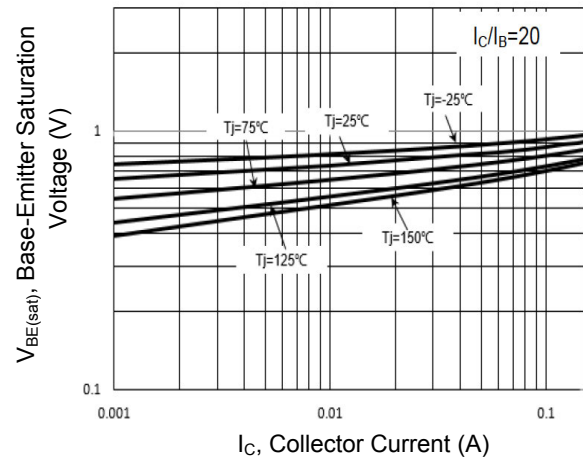


Figure 4. Base-Emitter Saturation Voltage vs. Collector Current

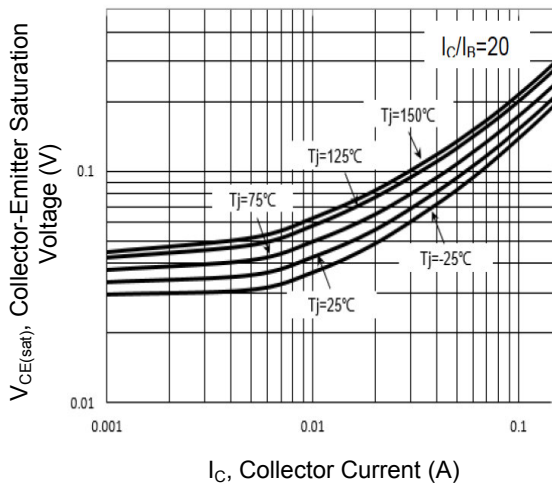


Figure 5. Collector-Emmitter Saturation Voltage vs. Collector Current

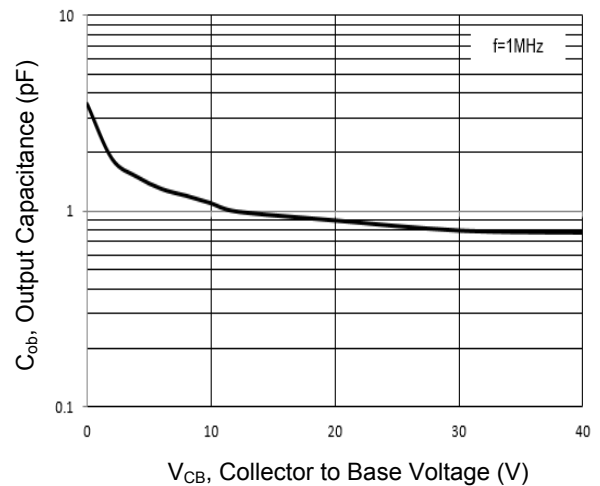


Figure 6. Output Capacitance

Electrical Characteristic Curves

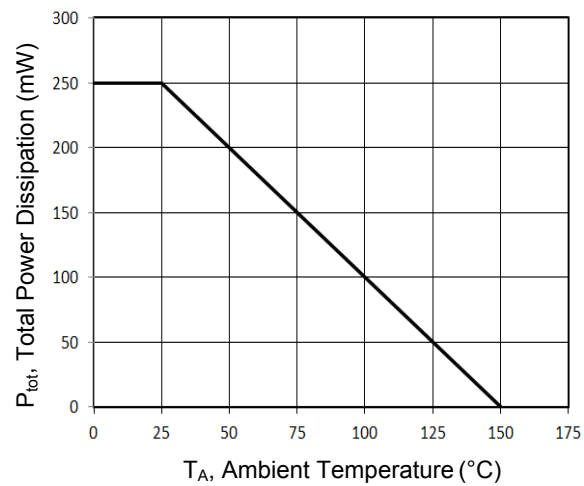
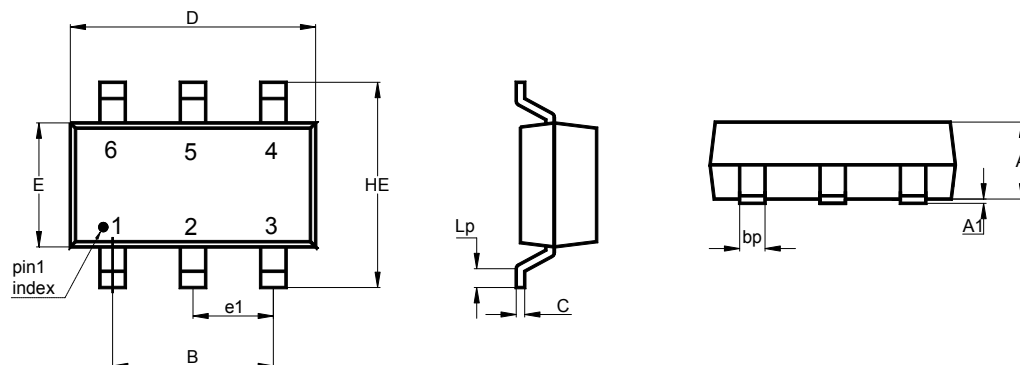


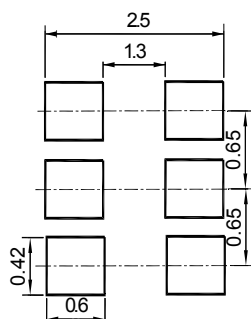
Figure 7. Power Derating Curve

Package Outline Dimensions (SOT-363)



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
B	1.30 TYP		0.051 TYP	
C	0.10	0.25	0.004	0.010
D	1.80	2.20	0.071	0.087
E	1.15	1.35	0.045	0.053
e1	0.65 TYP		0.026 TYP	
HE	2.00	2.20	0.079	0.087
Lp	0.15	0.40	0.006	0.016
bp	0.10	0.30	0.004	0.012

Recommended Pad Layout



unit: mm

Order Information

Device	Package	Marking	Packaging	SPQ
GSBC846BDW	SOT-363	1B	Tape & Reel	3,000 pcs / Reel