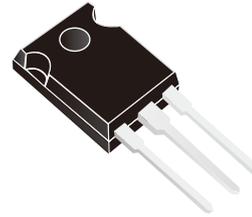


CDBGBSC20650-G

Reverse Voltage: 650V

Forward Current: 20A

RoHS Device



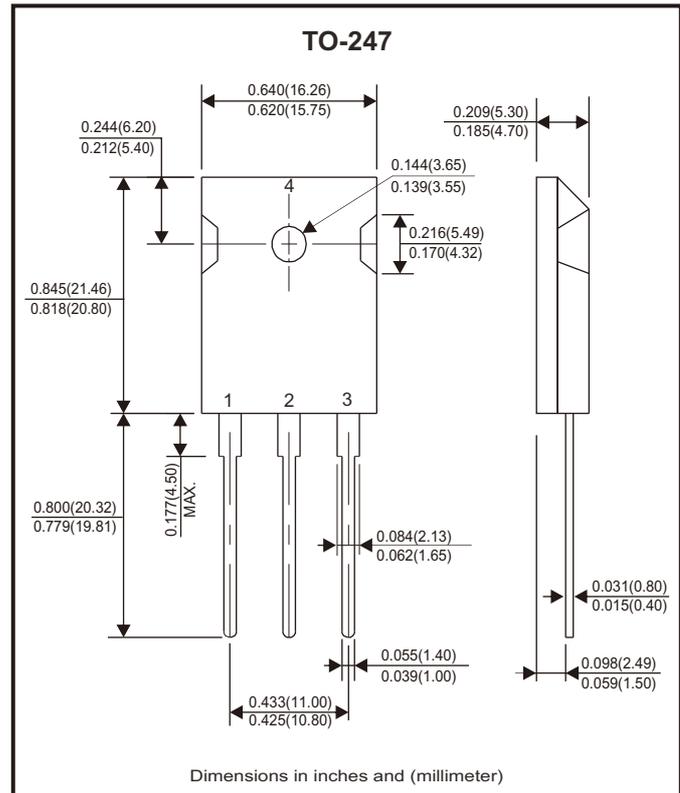
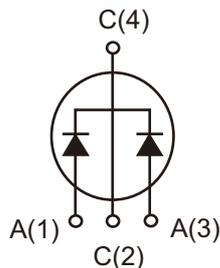
Features

- Rated to 650V at 20 Amps
- Short recovery time.
- High speed switching possible.
- High frequency operation.
- High temperature operation.
- Temperature independent switching behaviour.
- Positive temperature coefficient on V_F .

Mechanical Data

- Case: TO-247, molded plastic.
- Terminals: Solderable per MIL-STD-750, method 2026.

Circuit diagram



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

Parameter	Conditions	Symbol	Value	Unit
Repetitive peak reverse voltage		V_{RRM}	650	V
Surge peak reverse voltage		V_{RSM}	650	V
DC blocking voltage		V_{DC}	650	V
Continuous forward current	$T_C = 155^\circ\text{C}$ (Per leg)	I_F	10	A
Repetitive peak forward surge current	$T_C = 25^\circ\text{C}$, $t_p = 10\text{ms}$ Half sine wave, $D = 0.3$ (Per leg)	I_{FRM}	50	A
Non-repetitive peak forward surge current	$T_C = 25^\circ\text{C}$, $t_p = 10\text{ms}$ Half sine wave (Per leg)	I_{FSM}	100	A
Power dissipation	$T_C = 25^\circ\text{C}$ (Per leg)	P_{TOT}	109	W
	$T_C = 110^\circ\text{C}$ (Per leg)		48	
Typical thermal resistance from junction to case	Per leg	$R_{\theta JC}$	1.37	$^\circ\text{C/W}$
	Per diode	$R_{\theta JC}$	0.69	
Operating junction temperature range		T_J	-55 ~ +175	$^\circ\text{C}$
Storage temperature range		T_{STG}	-55 ~ +175	$^\circ\text{C}$

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

Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
Forward voltage	$I_F = 10\text{A}, T_J = 25^\circ\text{C}$	V_F		1.5	1.7	V
	$I_F = 10\text{A}, T_J = 175^\circ\text{C}$			1.7	2.5	
Reverse current	$V_R = 650\text{V}, T_J = 25^\circ\text{C}$	I_R		20	100	μA
	$V_R = 650\text{V}, T_J = 175^\circ\text{C}$			30	200	
Total capacitive charge	$V_R = 400\text{V}, T_J = 150^\circ\text{C}$ $Q_C = \int_0^{V_R} C(V) dv$	Q_C		36		nC
Total capacitance	$V_R = 0\text{V}, T_J = 25^\circ\text{C}, f = 1\text{MHz}$	C		690	730	pF
	$V_R = 200\text{V}, T_J = 25^\circ\text{C}, f = 1\text{MHz}$			72	75	
	$V_R = 400\text{V}, T_J = 25^\circ\text{C}, f = 1\text{MHz}$			71	74	

Rating and Characteristic Curves (CDBGBSC20650-G)

Fig.1 - Forward IV Characteristics as a Function of T_J :

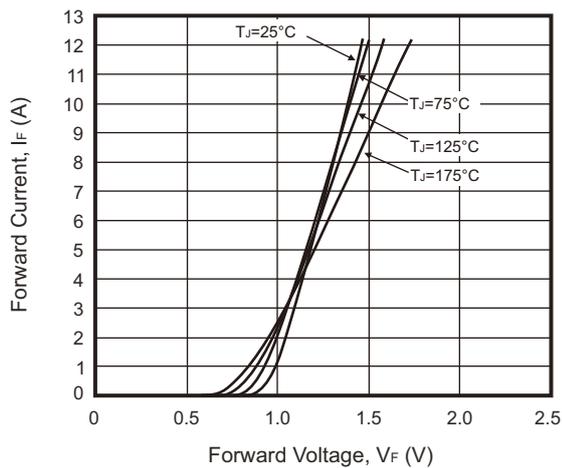


Fig.2 - Reverse IV Characteristics as a Function of T_J :

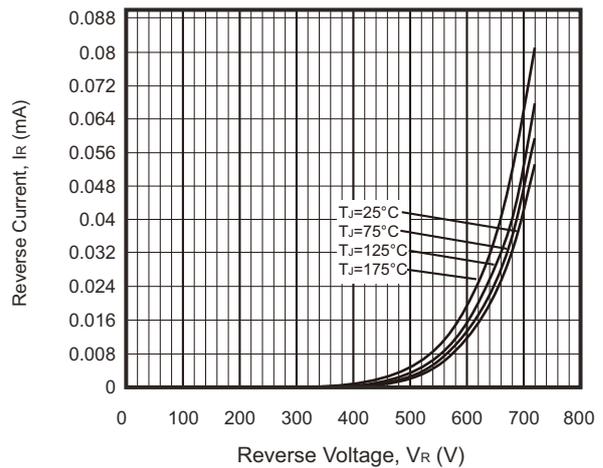


Fig.3 - Current Derating

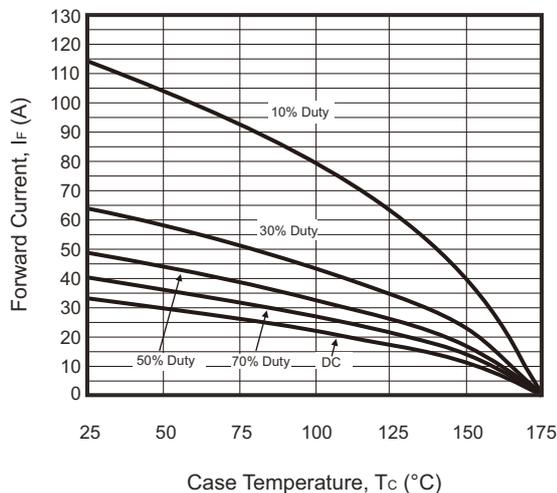
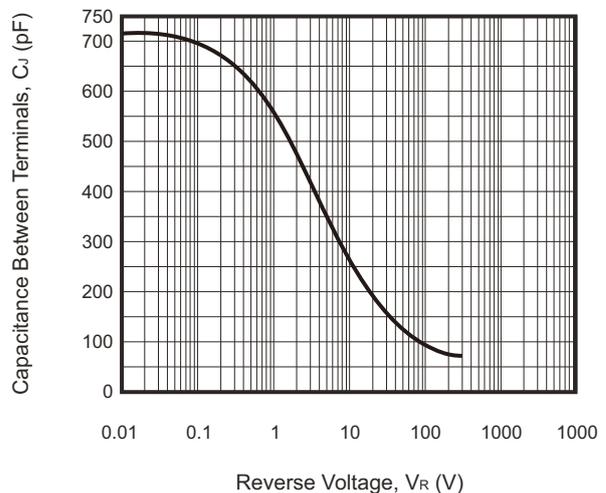


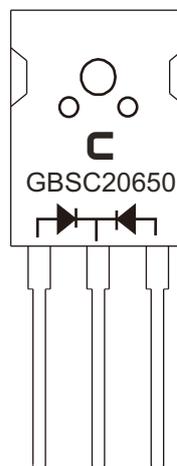
Fig.4 - Capacitance VS. Reverse Voltage



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Marking Code

Part Number	Marking Code
CDBGBSC20650-G	GBSC20650



Standard Packaging

Case Type	TUBE PACK	
	TUBE (pcs)	BOX (pcs)
TO-247	25	500