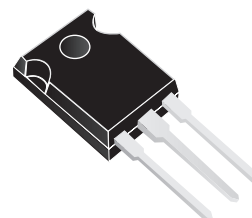


CDBGBSC20650-G

Reverse Voltage: 650V

Forward Current: 20A

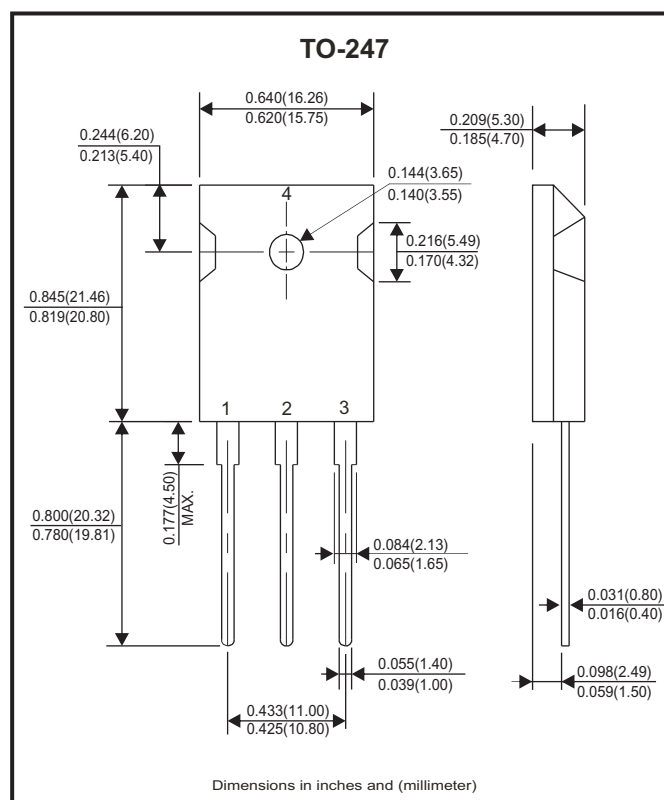
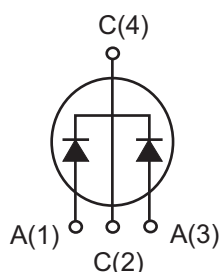
RoHS Device



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

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	$T_C = 25^\circ\text{C}$ (Per leg)	I_F	33	A
	$T_C = 135^\circ\text{C}$ (Per leg)		15	
	$T_C = 155^\circ\text{C}$ (Per leg)		10	
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	$^\circ\text{C}$

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)

Per Leg:

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

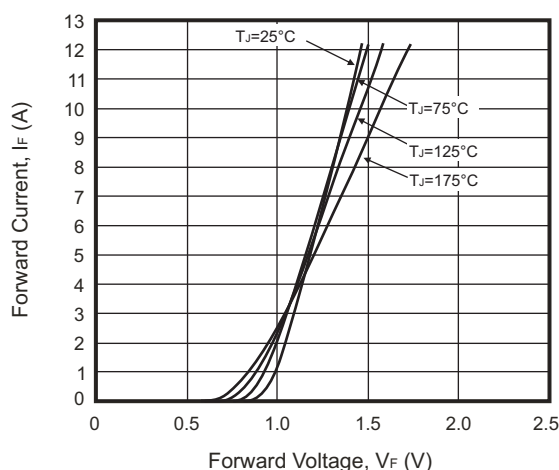


Fig.2 - Reverse IV Characteristics as a Function of T_J :

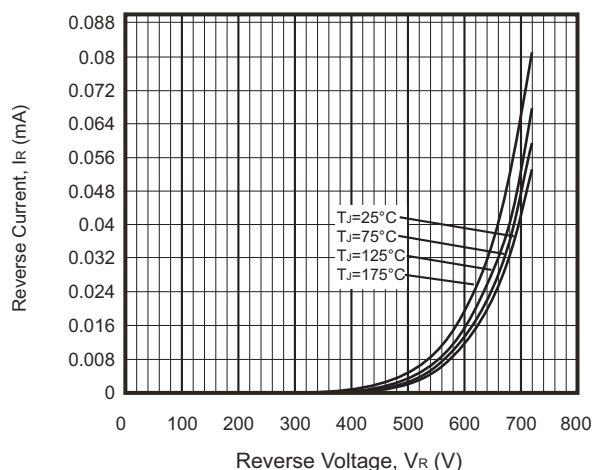


Fig.3 - Current Derating

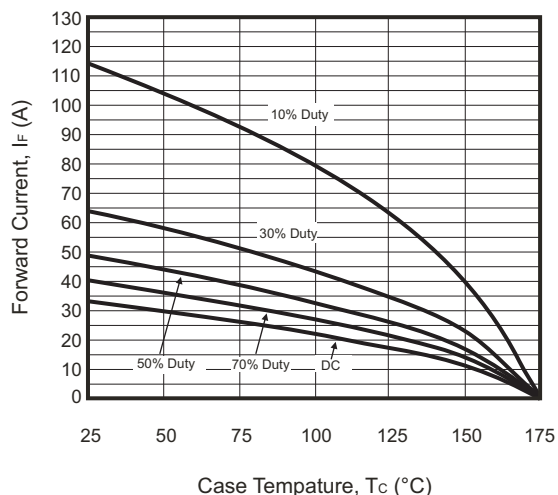


Fig.4 - Capacitance VS. Reverse Voltage

