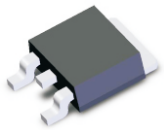
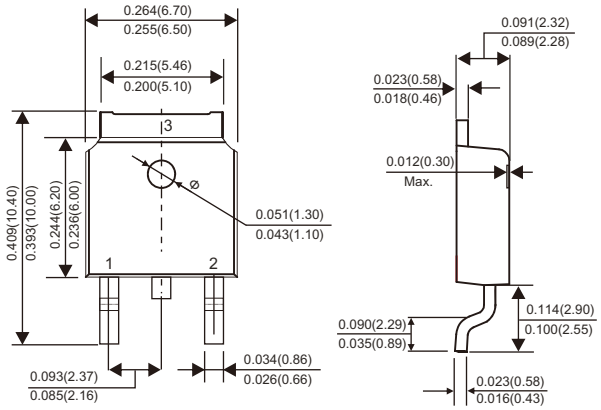
Silicon Carbide Power Schottky Diode

CDBDSC8650-G

Reverse Voltage: 650 V
Forward Current: 8 A
RoHS Device



D-PAK(TO-252)



Dimensions in inches and (millimeters)

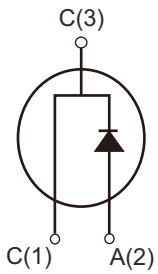
Features

- Rated to 650V at 8 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-252/DPAK, molded plastic.
- Terminals: Solderable per MIL-STD-750, method 2026.

Circuit Diagram



Maximum Ratings (at T_A=25°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 = 150°C	I_F	8	A
Repetitive peak forward surge current	Tc = 25°C, tp = 10ms Half sine wave, D = 0.3	I_{FRM}	50	A
Non-repetitive peak forward surge current	Tc = 25°C, tp = 10ms Half sine wave	I_{FSM}	80	A
Power dissipation	T_C = 25°C	P_{TOT}	102.4	W
	T_C = 110°C		45	
Typical thermal resistance	Junction to case	$R_{\theta JC}$	1.465	°C/W
Operating junction temperature range		T_J	-55 ~ +175	°C
Storage temperature range		T_{STG}	-55 ~ +175	°C

Company reserves the right to improve product design , functions and reliability without notice. REV:A

Electrical Characteristics (at T_A=25°C, unless otherwise noted)

Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
Forward voltage	I_F = 8A, T_j = 25°C	V_F		1.45	1.7	V
	I_F = 8A, T_j = 175°C			1.75	2.5	
Reverse current	V_R = 650V, T_j = 25°C	I_R		10	100	μA
	V_R = 650V, T_j = 175°C			15	200	
Total capacitive charge	V_R = 400V, T_j = 150°C $Q_C = \int_0^{V_R} C(V)\,dv$	Q_C		30		nC
Total capacitance	V_R = 0V, T_j = 25°C, f = 1MHz	C		560		pF
	V_R = 200V, T_j = 25°C, f = 1MHz			56.5		
	V_R = 400V, Tj=25°C, f=1MHz			54		

Rating and Characteristics Curves (CDBDSC8650-G)

Fig.1 - Forward Characteristics

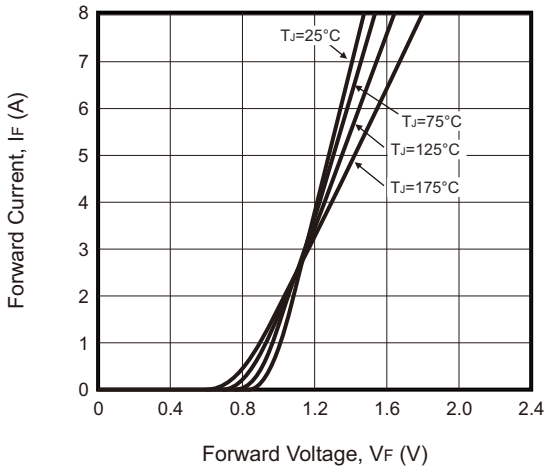


Fig.2 - Reverse Characteristics

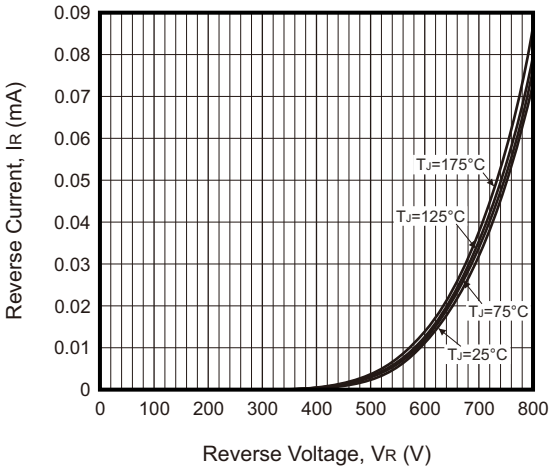


Fig.3 - Current Derating

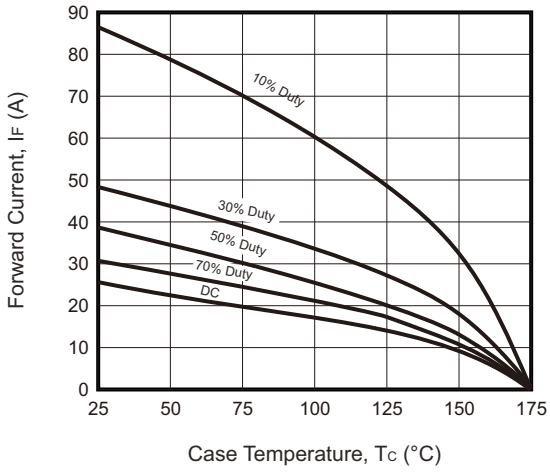
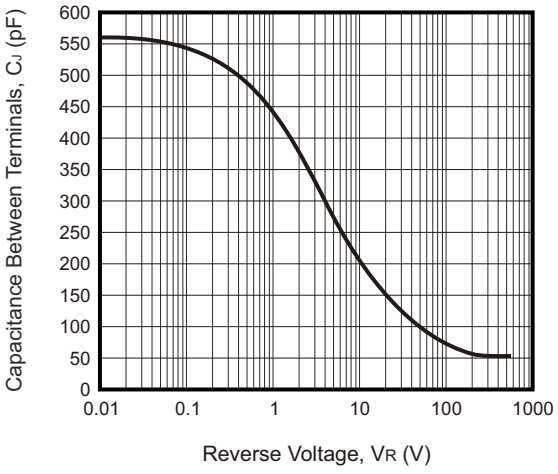


Fig.4 - Capacitance vs. Reverse Voltage



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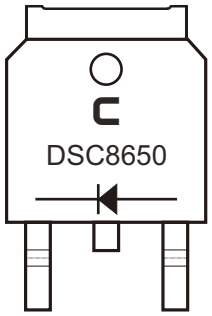
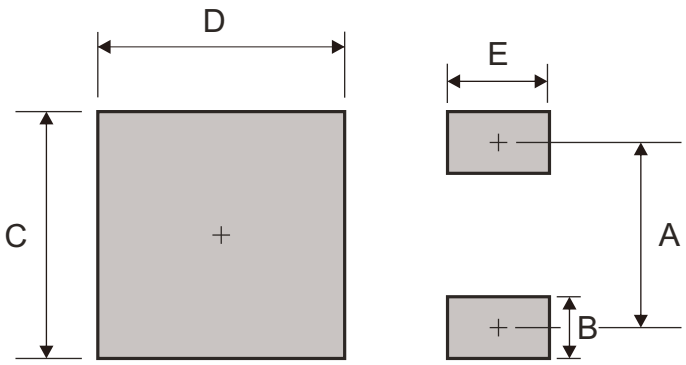
Marking Code

Part Number	Marking Code
CDBDSC8650-G	DSC8650



Suggested PAD Layout

SIZE	TO-252 / DPAK	
	(mm)	(inch)
A	4.57	0.180
B	1.20	0.047
C	5.80	0.228
D	5.85	0.230
E	2.00	0.079



Standard Packaging

Case Type	TUBE PACK	
	TUBE (pcs)	BOX (pcs)
TO-252/DPAK	80	1,600