

## CDBDSC3650-G

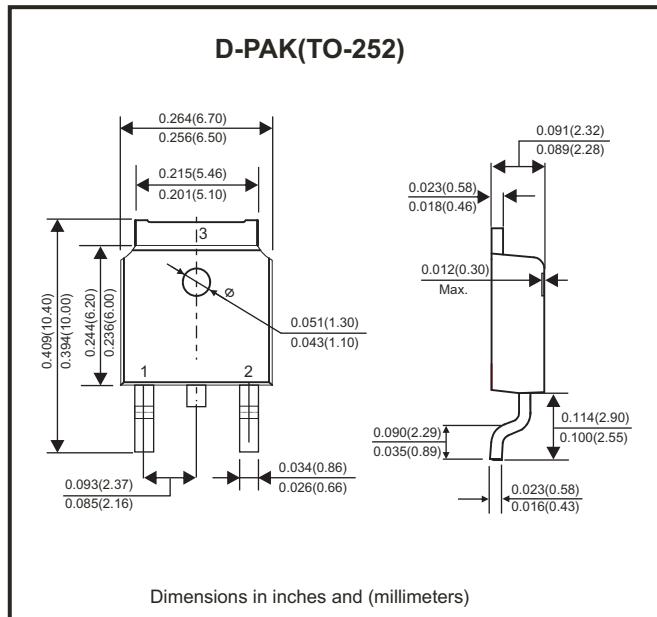
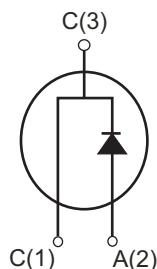
**Reverse Voltage: 650 V**  
**Forward Current: 3 A**  
**RoHS Device**



### Features

- Rated to 650V at 3 Amps
- Short recovery time
- High speed switching possible
- High frequency operation.
- High temperature operation.
- Temperature independent switching behaviour.
- Positive temperature coefficient on VF

### Circuit Diagram



### Maximum Ratings (at TA=25°C, unless otherwise noted)

Parameter	Conditions	Symbol	Value	Unit
Repetitive peak reverse voltage		V <sub>RRM</sub>	650	V
Surge peak reverse voltage		V <sub>RSM</sub>	650	V
DC blocking voltage		V <sub>DC</sub>	650	V
Continuous forward current	T <sub>c</sub> = 25°C T <sub>c</sub> = 135°C T <sub>c</sub> = 155°C	I <sub>F</sub>	11 5 3	A
Repetitive peak forward surge current	T <sub>c</sub> = 25°C, tp = 10ms Half sine wave, D = 0.3	I <sub>FRM</sub>	15	A
Non-repetitive peak forward surge current	T <sub>c</sub> = 25°C, tp = 10ms Half sine wave	I <sub>FSM</sub>	35	A
Power dissipation	T <sub>c</sub> = 25°C T <sub>c</sub> = 110°C	P <sub>TOT</sub>	53.2 23	W
Typical thermal resistance	Junction to case	R <sub>θJC</sub>	2.82	°C/W
Operating junction temperature range		T <sub>J</sub>	-55 ~ +175	°C
Storage temperature range		T <sub>STG</sub>	-55 ~ +175	°C

# Silicon Carbide Power Schottky Diode

**Comchip**  
SMD Diode Specialist

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

Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
Forward voltage	$I_F = 3\text{A}, T_j = 25^\circ\text{C}$	$V_F$		1.4	1.7	V
	$I_F = 3\text{A}, T_j = 175^\circ\text{C}$			1.8	2.5	
Reverse current	$V_R = 650\text{V}, T_j = 25^\circ\text{C}$	$I_R$		10	100	$\mu\text{A}$
	$V_R = 650\text{V}, T_j = 175^\circ\text{C}$			20	200	
Total capacitive charge	$V_R = 400\text{V}, T_j = 150^\circ\text{C}$ $Q_C = \int_0^{V_R} C(V) dV$	$Q_C$		11		nC
Total capacitance	$V_R = 0\text{V}, T_j = 25^\circ\text{C}, f = 1\text{MHz}$	$C$		181	220	$\text{pF}$
	$V_R = 200\text{V}, T_j = 25^\circ\text{C}, f = 1\text{MHz}$			22.5	25	
	$V_R = 400\text{V}, T_j = 25^\circ\text{C}, f = 1\text{MHz}$			20.5	21	

## RATING AND CHARACTERISTIC CURVES (CDBDSC3650-G)

Fig.1 - Forward Characteristics

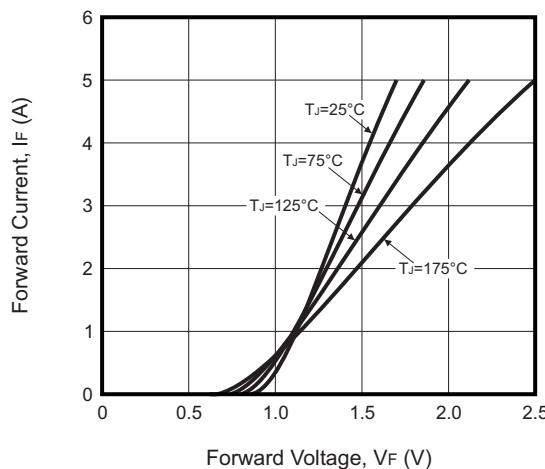


Fig.2 - Reverse Characteristics

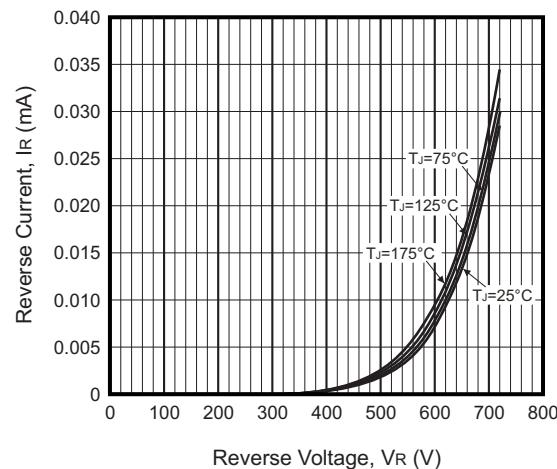


Fig.3 - Current Derating

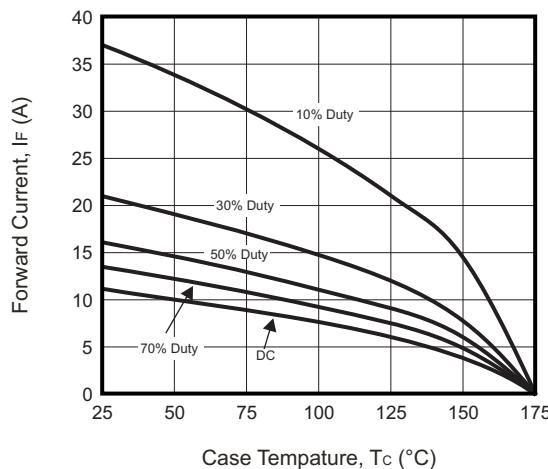


Fig.4 - Capacitance vs. Reverse Voltage

