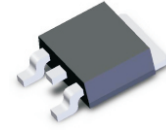


## CDBDSC3650-G

Reverse Voltage: 650 V

Forward Current: 3 A

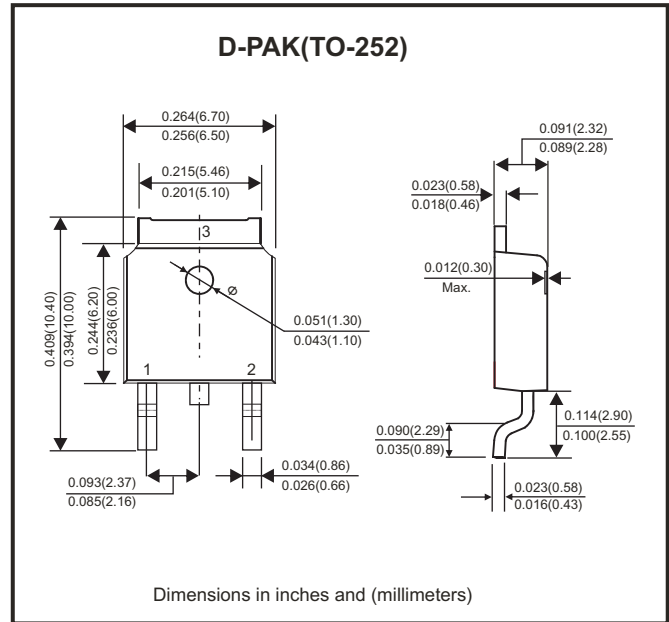
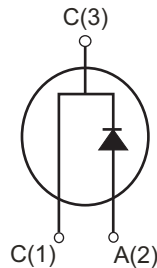
RoHS Device



### 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  $V_f$

### 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	$T_c = 25^\circ\text{C}$	$I_F$	11	A
	$T_c = 135^\circ\text{C}$		5	
	$T_c = 155^\circ\text{C}$		3	
Repetitive peak forward surge current	$T_c = 25^\circ\text{C}$ , $t_p = 10\text{ms}$ Half sine wave, $D = 0.3$	$I_{FRM}$	15	A
Non-repetitive peak forward surge current	$T_c = 25^\circ\text{C}$ , $t_p = 10\text{ms}$ Half sine wave	$I_{FSM}$	35	A
Power dissipation	$T_c = 25^\circ\text{C}$	$P_{TOT}$	53.2	W
	$T_c = 110^\circ\text{C}$		23	
Typical thermal resistance	Junction to case	$R_{\theta JC}$	2.82	$^\circ\text{C/W}$
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	$I_F = 3\text{A}, T_j = 25^\circ\text{C}$	$V_F$		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	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

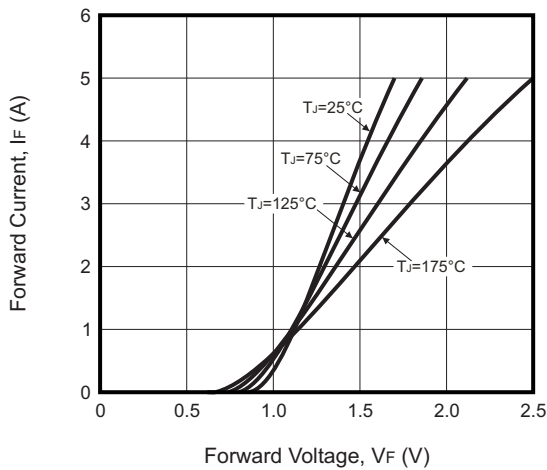


Fig.2 - Reverse Characteristics

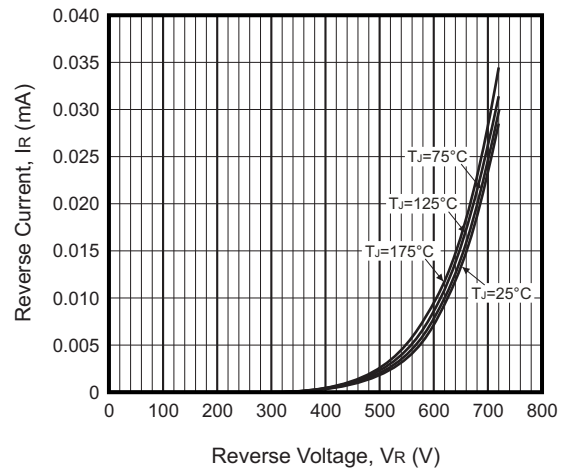


Fig.3 - Current Derating

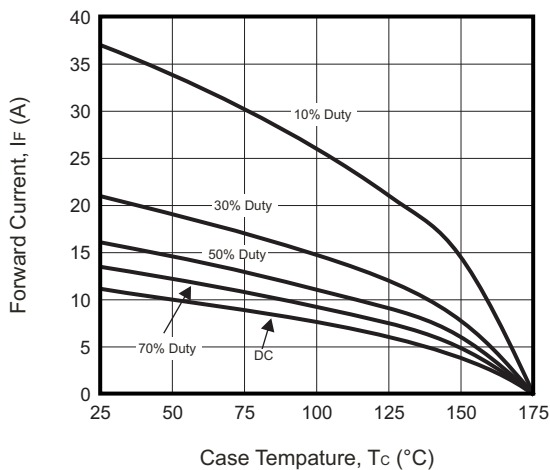
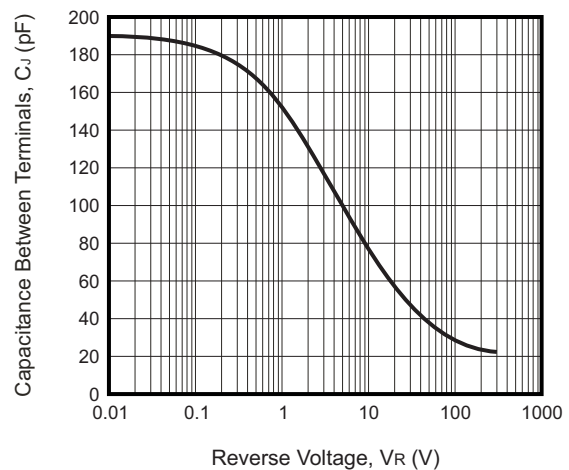


Fig.4 - Capacitance vs. Reverse Voltage



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