

## CDBDSC5650-G

Reverse Voltage: 650 V

Forward Current: 5 A

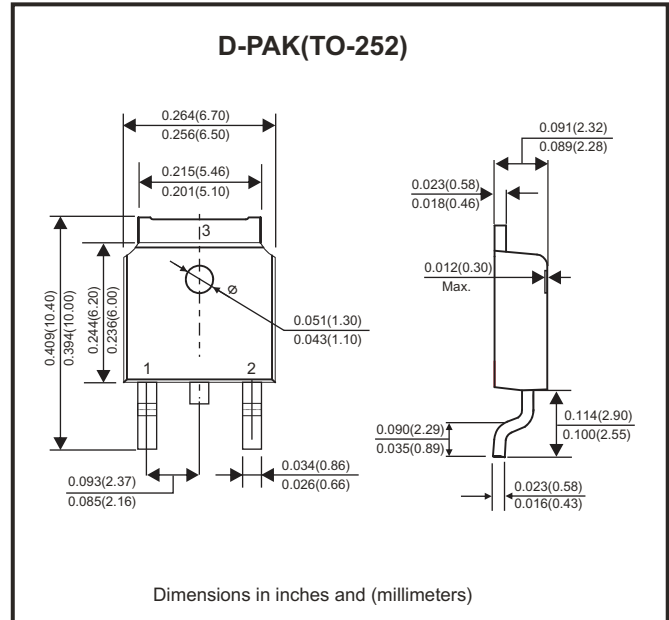
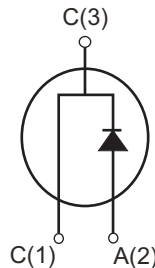
RoHS Device



### Features

- Rated to 650V at 5 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	$T_c = 25^{\circ}\text{C}$	$I_F$	21.5	A
	$T_c = 135^{\circ}\text{C}$		10	
	$T_c = 160^{\circ}\text{C}$		5	
Repetitive peak forward surge current	$T_c = 25^{\circ}\text{C}$ , $t_p = 10\text{ms}$ Half sine wave, $D = 0.3$	$I_{FRM}$	40	A
Non-repetitive peak forward surge current	$T_c = 25^{\circ}\text{C}$ , $t_p = 10\text{ms}$ Half sine wave	$I_{FSM}$	80	A
Power dissipation	$T_c = 25^{\circ}\text{C}$	$P_{TOT}$	85.8	W
	$T_c = 110^{\circ}\text{C}$		37.2	
Typical thermal resistance	Junction to case	$R_{\theta JC}$	1.748	$^{\circ}\text{C}/\text{W}$
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	$I_F = 5\text{A}, T_J = 25^\circ\text{C}$	$V_F$		1.35	1.7	V
	$I_F = 5\text{A}, T_J = 175^\circ\text{C}$			1.55	2.5	
Reverse current	$V_R = 650\text{V}, T_J = 25^\circ\text{C}$	$I_R$		10	100	$\mu\text{A}$
	$V_R = 650\text{V}, T_J = 175^\circ\text{C}$			15	200	
Total capacitive charge	$V_R = 400\text{V}, T_J = 150^\circ\text{C}$ $Q_C = \int_0^{V_R} C(V) dv$	$Q_C$		23		nC
Total capacitance	$V_R = 0\text{V}, T_J = 25^\circ\text{C}, f = 1\text{MHz}$	C		424	434	pF
	$V_R = 200\text{V}, T_J = 25^\circ\text{C}, f = 1\text{MHz}$			44	45	
	$V_R = 400\text{V}, T_J = 25^\circ\text{C}, f = 1\text{MHz}$			42.5	43	

## RATING AND CHARACTERISTIC CURVES (CDBDSC5650-G)

Fig.1 - Forward Characteristics

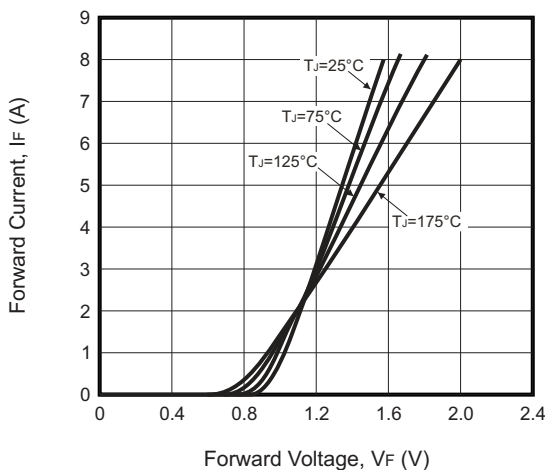


Fig.2 - Reverse Characteristics

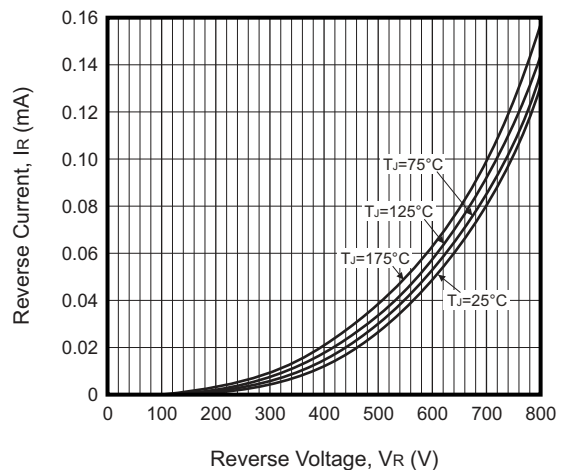


Fig.3 - Current Derating

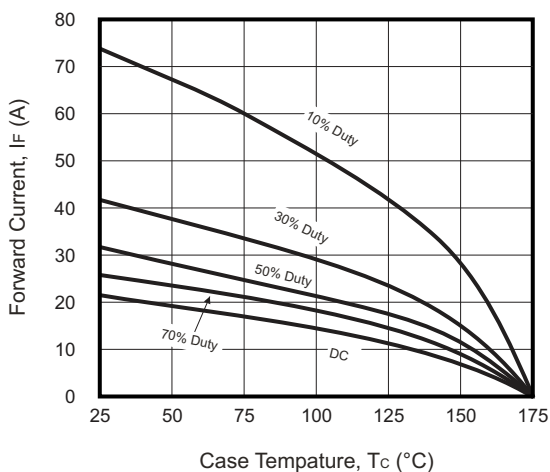


Fig.4 - Capacitance vs. Reverse Voltage

