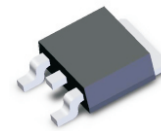


CDBDSC6650-G

Reverse Voltage: 650 V

Forward Current: 6 A

RoHS Device

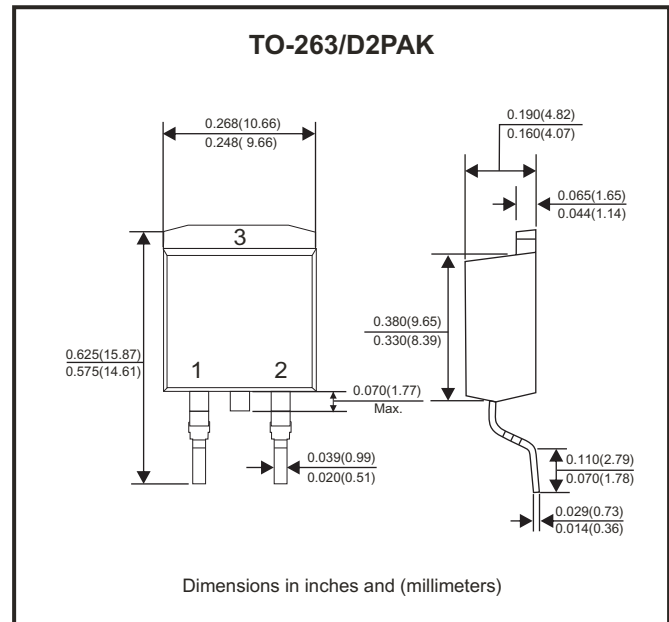


Features

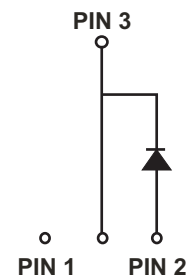
- Rated to 650V at 6 Amps
- Zero reverse recovery current
- Zero forward recovery voltage
- Temperature independent switching behaviour.
- High temperature operation.
- High frequency operation.

Mechanical data

- Case: TO-263/D2PAK, molded plastic.
- Terminals: Solderable per MIL-STD-750, method 2026.



Circuit Diagram



Maximum Ratings (at $T_A=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Conditions	Symbol	Limit	Unit
Repetitive peak reverse voltage	$T_J = 25^{\circ}\text{C}$	V_{RRM}	650	V
Surge peak reverse voltage	$T_J = 25^{\circ}\text{C}$	V_{RSM}	650	V
DC blocking voltage	$T_J = 25^{\circ}\text{C}$	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	
	$T_C = 158^{\circ}\text{C}$		6	
Repetitive peak forward surge current	$T_C = 25^{\circ}\text{C}$, $t_p = 10\text{ms}$ Half sine wave, $D = 0.3$	I_{FRM}	30	A
Non-repetitive peak forward surge current	$T_C = 25^{\circ}\text{C}$, $t_p = 10\text{ms}$ Half sine wave	I_{FSM}	42	A
Power dissipation	$T_C = 25^{\circ}\text{C}$	P_{TOT}	85.8	W
	$T_C = 110^{\circ}\text{C}$		39	
Typical thermal resistance	Junction to case	$R_{\theta JC}$	1.748	$^{\circ}\text{C/W}$
Operating junction temperature range		T_J	$-55 \sim +175$	$^{\circ}\text{C}$
Storage temperature range		T_{STG}	$-55 \sim +175$	$^{\circ}\text{C}$

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

Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
Forward voltage	$I_F = 6\text{A}$, $T_J = 25^\circ\text{C}$	V_F		1.44	1.8	V
	$I_F = 6\text{A}$, $T_J = 175^\circ\text{C}$			1.73	2.5	
Reverse current	$V_R = 650\text{V}$, $T_J = 25^\circ\text{C}$	I_R		10	100	μA
	$V_R = 650\text{V}$, $T_J = 175^\circ\text{C}$			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 (CDBDSC6650-G)

Fig.1 - Forward Characteristics

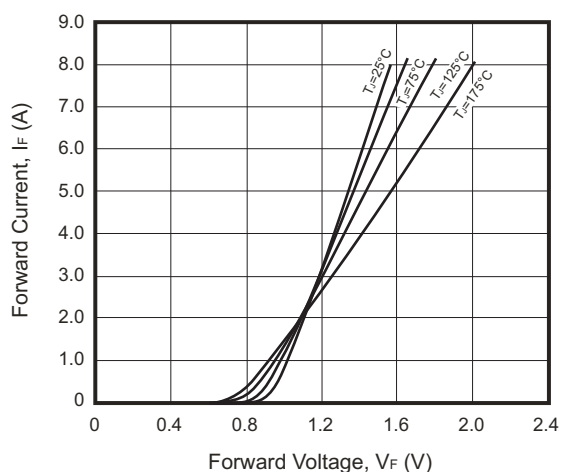


Fig.2 - Reverse Characteristics

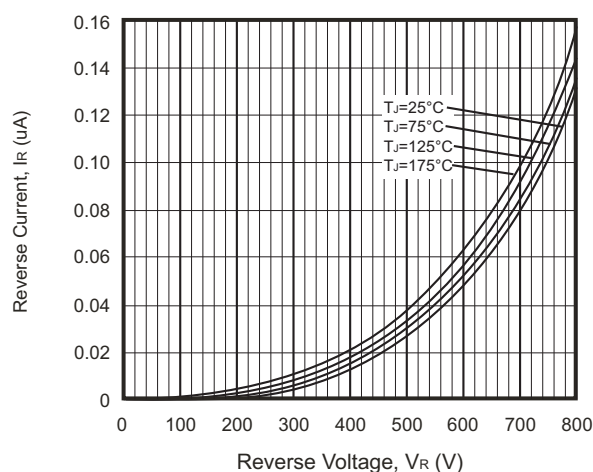


Fig.3 - Current Derating

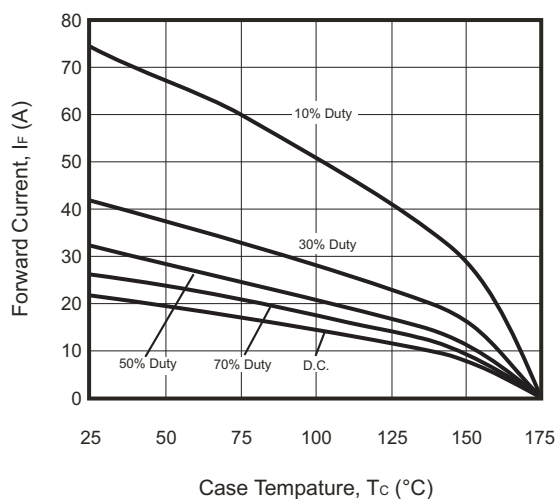
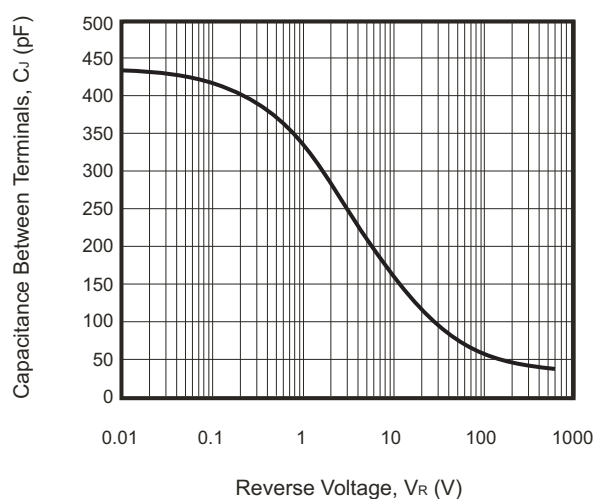
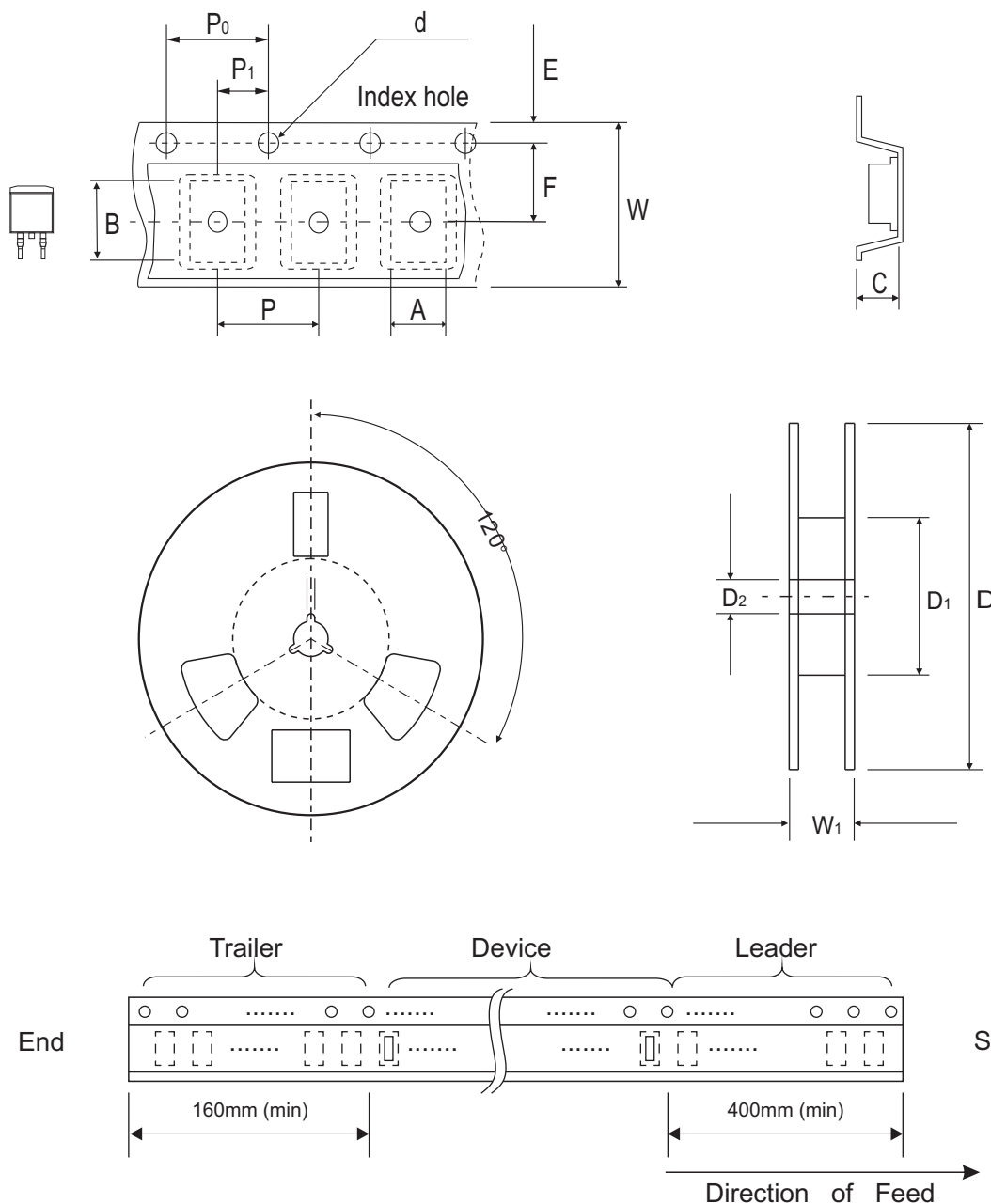


Fig.4 - Capacitance Characteristics



Reel Taping Specification



TO-263/D2PAK	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	10.80 ± 0.10	16.13 ± 0.10	5.21 ± 0.10	1.55 ± 0.05	330.00 ± 1.00	62.00 ± 1.50	$13.00 + 0.50$ $- 0.20$
	(inch)	0.425 ± 0.004	0.635 ± 0.004	0.205 ± 0.004	0.061 ± 0.002	12.992 ± 0.039	2.441 ± 0.059	$0.531 + 0.020$ $- 0.008$

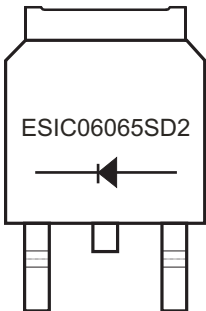
TO-263/D2PAK	SYMBOL	E	F	P	P0	P1	W	W1
	(mm)	1.75 ± 0.10	11.50 ± 0.10	16.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.10	$24.00 + 0.30$ $- 0.10$	$24.00 + 3.00$ $- 0.00$
	(inch)	0.069 ± 0.004	0.453 ± 0.004	0.630 ± 0.004	0.157 ± 0.004	0.079 ± 0.004	$0.944 + 0.012$ $- 0.004$	$0.945 + 0.118$ $- 0.00$

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

REV:A

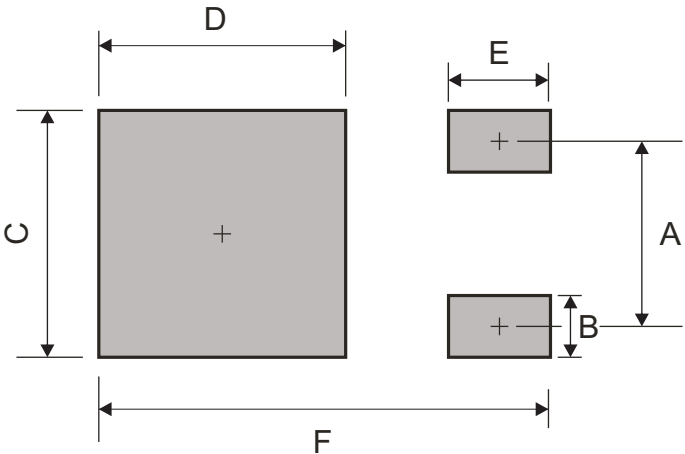
Marking Code

Part Number	Marking Code
CDBDSC6650-G	ESIC06065SD2



Suggested PAD Layout

SIZE	TO-263 / D2PAK	
	(mm)	(inch)
A	5.08	0.200
B	1.10	0.043
C	10.80	0.425
D	8.30	0.327
E	3.50	0.138
F	16.90	0.665



Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
TO-263/D2PAK	800	13