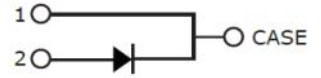


$V_{RRM} = 1700\text{ V}$
 $I_F(T_C=110^\circ\text{C}) = 75\text{ A}$
 $V_F(T_J=25^\circ\text{C}) = 1.7\text{ V}$



TO-247-2



Features

- Low reverse current
- Good surge current capability
- Low capacitive charge
- No reverse recovery current
- Halogen free, RoHs compliant

Benefits

- System efficiency improvement over Si diodes
- Higher switching frequency
- Increased power density
- Essentially no switching losses

Applications

- Switch mode power supplies (SMPS)
- Uninterruptible power supplies
- On Board Charger
- UPS

Package Pin Definitions

- Pin1- Cathode
- Pin2- Anode

Part Number	Marking	Package
CI50S170D3L2	CI50S170D3L2	TO-247-2

Maximum Ratings (T_c=25°C unless otherwise specified)

Symbol	Parameter	Test conditions	Value	Unit
V _{RRM}	Repetitive peak reverse voltage		1700	V
V _{RSM}	Non-repetitive peak reverse voltage		1700	V
I _F	Continuous forward current	T _C =25°C T _C =110°C T _C =150°C	120 75 50	A
I _{FRM}	Repetitive forward surge current	T _C =25°C , t _p =10ms, Half Sine Pulse T _C =110°C , t _p =10ms, Half Sine Pulse	300 275	A
I _{FSM}	Non-Repetitive forward surge current	T _C =25°C , t _p =10ms, Half Sine Pulse T _C =110°C , t _p =10ms, Half Sine Pulse	600 550	A
∫i ² dt	i ² t value	T _C =25°C , t _p =10ms, Half Sine Pulse T _C =110°C , t _p =10ms, Half Sine Pulse	1800 1512.5	A ² S
P _{tot}	Power dissipation	T _C =25°C T _C =110°C	484 210	W
T _j	Operating junction temperature		-55~175	°C
T _{stg}	Storage temperature		-55~150	°C

Thermal Characteristics

Symbol	Parameter	Value			Unit
		Min.	Typ.	Max.	
R _{th(jc)}	Thermal resistance from junction to case		0.31		°C/W

Electrical Characteristics ($T_j=25^{\circ}\text{C}$ unless otherwise specified)
Static Characteristics

Symbol	Parameter	Test conditions	Value			Unit
			Min.	Typ.	Max.	
V_{DC}	DC blocking voltage	$T_j=25^{\circ}\text{C}$	1700			V
V_F	Diode forward voltage	$I_F=75\text{A } T_j=25^{\circ}\text{C}$ $I_F=75\text{A } T_j=175^{\circ}\text{C}$		1.7 3.0	2.2	V
I_R	Reverse current	$V_R=1700\text{V } T_j=25^{\circ}\text{C}$ $V_R=1700\text{V } T_j=175^{\circ}\text{C}$		5 50	100 200	μA

AC Characteristics ($T_j=25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Parameter	Test conditions	Value			Unit
			Min.	Typ.	Max.	
Q_C	Total capacitive charge	$V_R=1700\text{V } T_j=25^{\circ}\text{C}$ $Q_C = \int_0^{V_R} C(V)dV$		663		nC
C	Total capacitance	$V_R=0\text{V } f=1\text{MHz}$ $V_R=800\text{V } f=1\text{MHz}$ $V_R=1700\text{V } f=1\text{MHz}$		8400 278 261		pF

Typical Performance

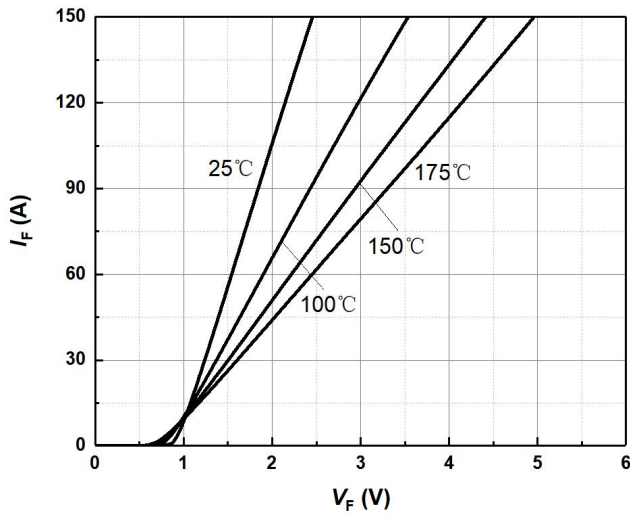


Figure 1. Typical forward characteristics

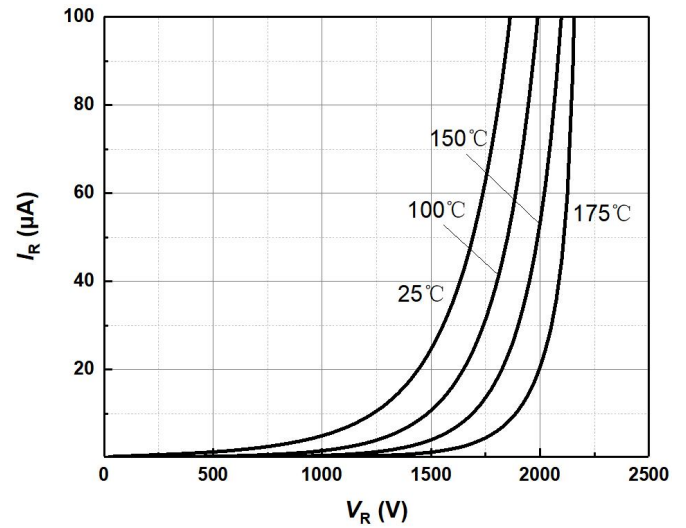


Figure 2. Typical reverse current as function of reverse voltage

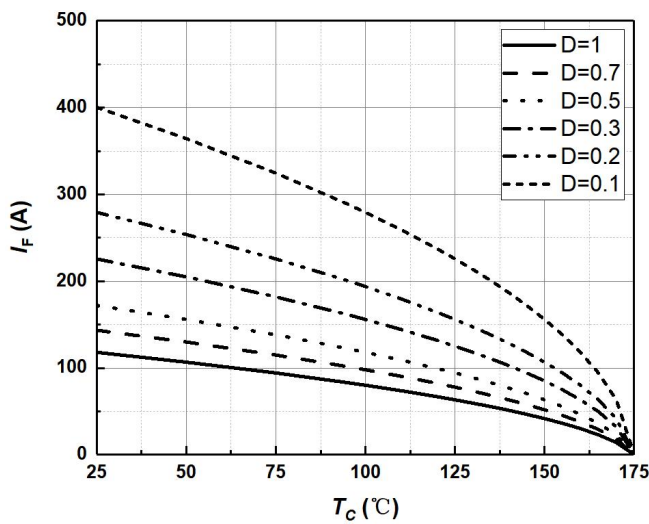


Figure 3. Diode forward current as function of temperature

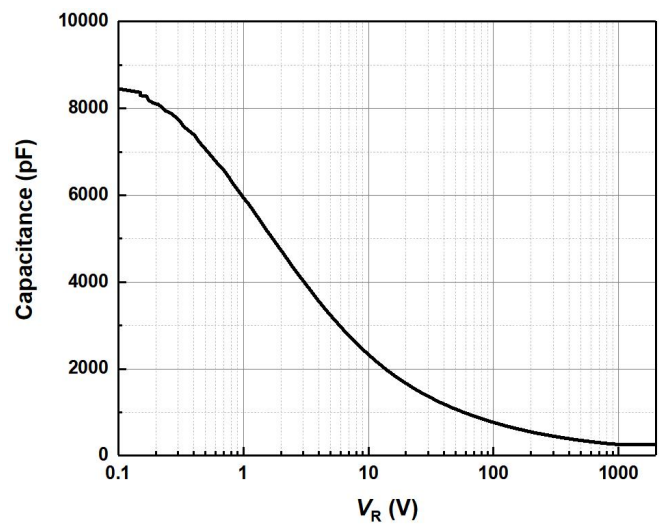


Figure 4. Typical capacitance as function of reverse voltage, $C=f(V_R)$; $T_j=25^\circ\text{C}$

Typical Performance

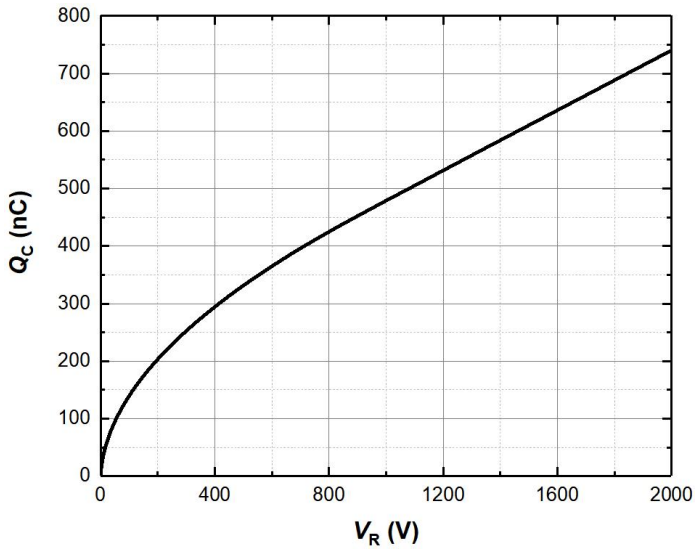


Figure 5. Typical reverse charge as function of reverse voltage

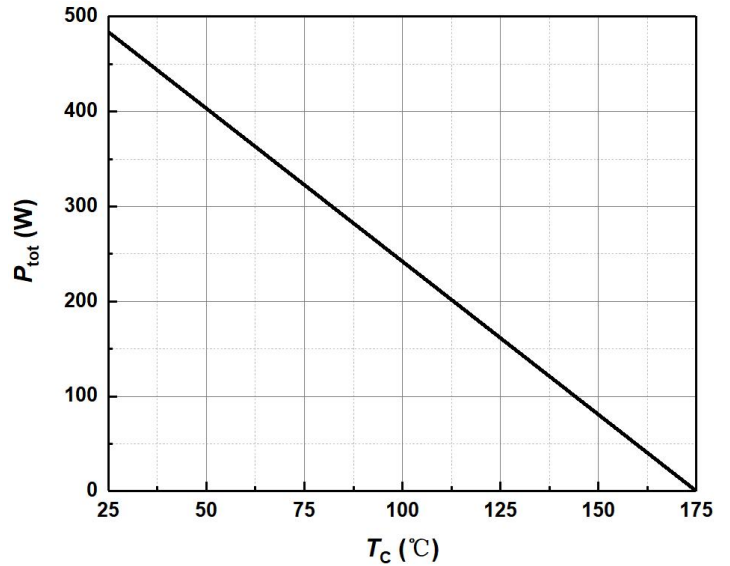


Figure 6. Power dissipation as function of case temperature

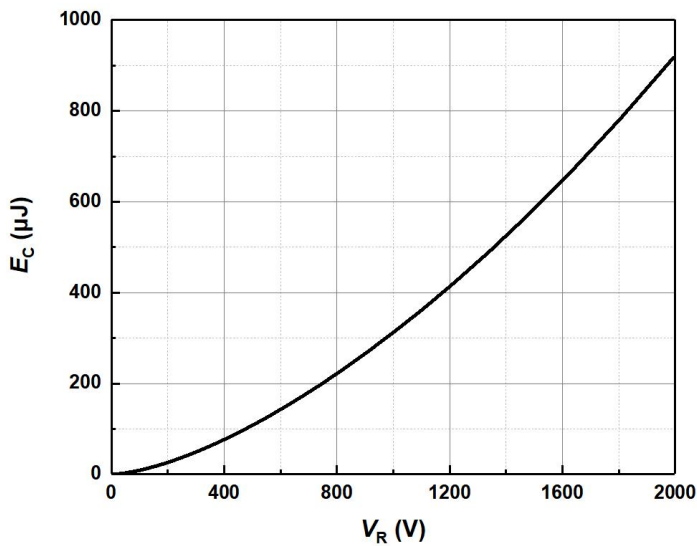


Figure 7. Capacitance stored energy

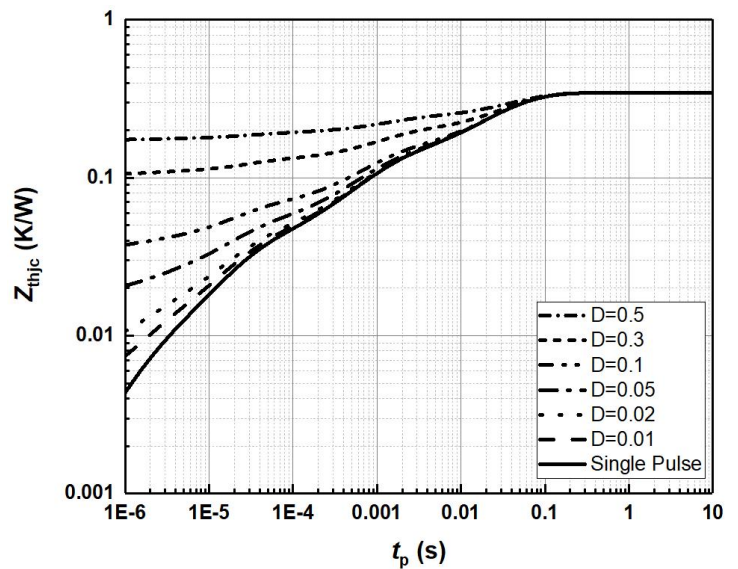
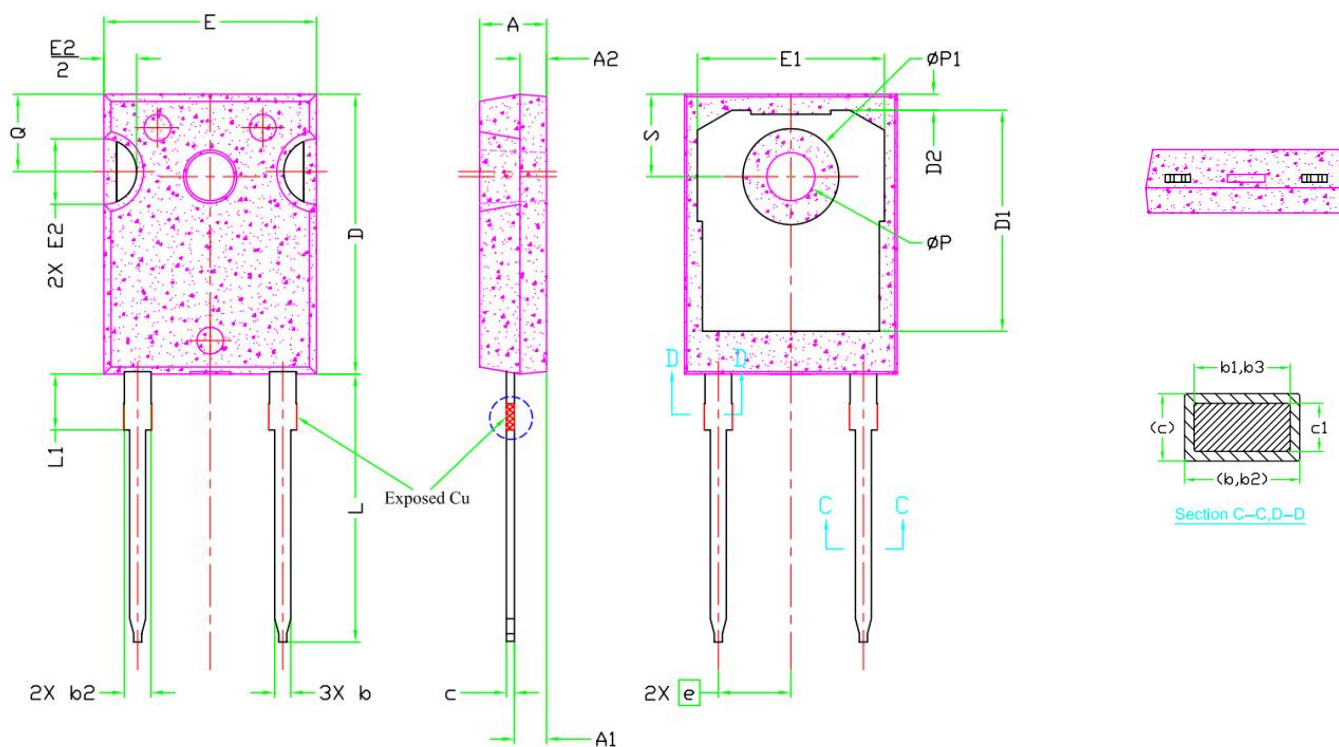


Figure 8. Max. transient thermal impedance

Package Dimensions



SYMBOL	DIMENSIONS			NOTES
	MIN.	NOM.	MAX.	
A	4.83	5.02	5.21	
A1	2.29	2.41	2.55	
A2	1.50	2.00	2.49	
b	1.12	1.20	1.33	
b1	1.12	1.20	1.28	
b2	1.91	2.00	2.39	6
b3	1.91	2.00	2.34	
c	0.55	0.60	0.69	6
c1	0.55	0.60	0.65	
D	20.80	20.95	21.10	4
D1	16.25	16.55	17.65	5
D2	0.51	1.19	1.35	
E	15.75	15.94	16.13	4
E1	13.46	14.02	14.16	5
E2	4.32	4.91	5.49	3
e	5.44BSC			
L	19.81	20.07	20.32	
L1	4.10	4.19	4.40	6
ØP	3.56	3.61	3.65	7
ØP1	7.19REF.			
Q	5.39	5.79	6.20	
S	6.04	6.17	6.30	