



芯科半导体

**ELECTRONIC
PRODUCT**

浙江芯科半导体有限公司



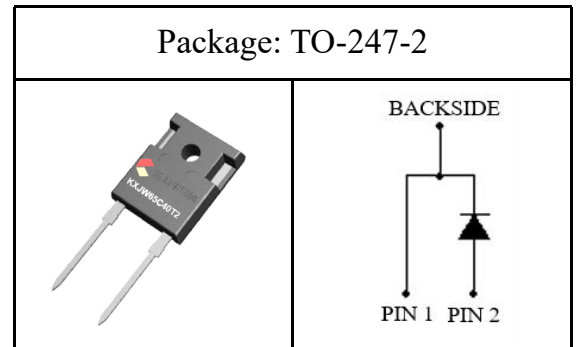
Features

- ✓ Zero forward recovery voltage
- ✓ Zero reverse recovery current
- ✓ Excellent surge current capability
- ✓ Temperature independent switching
- ✓ Positive temperature coefficient on V_F
- ✓ High frequency operation

Applications

- ✓ Motor drives
- ✓ Uninterruptible power supplies
- ✓ Photovoltaic inverter
- ✓ Switch mode power supplies (SMPS)

Part NO.	KXJW65C40T2
V_{RRM}	= 650 V
$I_F(T_C=150^\circ\text{C})$	= 48 A
Q_C	= 145 nC



Key performance parameters

Symbol	Parameter	Test conditions	Value	Unit	Note
V_{RRM}	Repetitive peak reverse voltage	$T_C=25^\circ\text{C}$	650	V	
V_{RSM}	Surge peak reverse voltage (DC)	$T_C=25^\circ\text{C}$	650	V	
I_F	Continuous forward current	$T_C=25^\circ\text{C}, D=1$ $T_C=135^\circ\text{C}, D=1$ $T_C=155^\circ\text{C}, D=1$	119 61 43	A	Fig.2
I_{FRM}	Repetitive forward surge current	$t_p=10$ ms, Half sine wave $T_C=25^\circ\text{C}$ $T_C=100^\circ\text{C}$	182 164	A	
I_{FSM}	Non-repetitive forward surge current	$t_p=10$ ms, Half sine wave $T_C=25^\circ\text{C}$ $T_C=150^\circ\text{C}$	222 216	A	
$\int i^2 dt$	i^2t value	$t_p=10$ ms, $T_C=25^\circ\text{C}$ $T_C=150^\circ\text{C}$	246 233	A ² s	
P_{tot}	Total power dissipation	$T_C=25^\circ\text{C}$	534	W	Fig.1
T_j	Operating junction temperature		-55 ~ 175	°C	
T_{stg}	Storage temperature		-55 ~ 175	°C	



Static electrical characteristics

Symbol	Parameter	Test conditions	Value			Unit	Note
			Min.	Typ.	Max.		
V_{DC}	DC blocking voltage	$I_R = 50 \mu A, T_j = 25^\circ C$	700	-	-	V	
V_F	Diode forward voltage	$I_F = 40 A, T_j = 25^\circ C$ $I_F = 40 A, T_j = 150^\circ C$	-	1.47 2	1.6 -	V	Fig.3
I_R	Reverse current	$V_R = 650 V, T_j = 25^\circ C$ $V_R = 650 V, T_j = 150^\circ C$	-	0.03 5	- -	μA	Fig.4
C	Total capacitance	$V_R = 0.1 V, T_j = 25^\circ C, f = 1 MHz$ $V_R = 200 V, T_j = 25^\circ C, f = 1 MHz$ $V_R = 400 V, T_j = 25^\circ C, f = 1 MHz$	-	2659 280 200	- - -	pF	Fig.8
Q_C	Total capacitive charge	$V_R = 400 V, T_j = 25^\circ C$	-	145	-	nC	Fig.5
E_C	Capacitance stored energy	$V_R = 400 V, T_j = 25^\circ C$	-	37	-	μJ	Fig.7
T_{RR}	Reverse recovery time	$V_R = 400V, I_F = 40A, di/dt = 1000A/\mu s$		20		ns	
Q_{RR}	Reverse recovery Charge				122		nC

Thermal characteristics

Symbol	Parameter	Value		Unit	Note
		Typ	Max		
$R_{\theta JC}$	Thermal resistance from junction to case	0.281	-	$^\circ C/W$	Fig.6
$R_{\theta JA}$	Thermal resistance from junction to ambient	32.21	-	$^\circ C/W$	

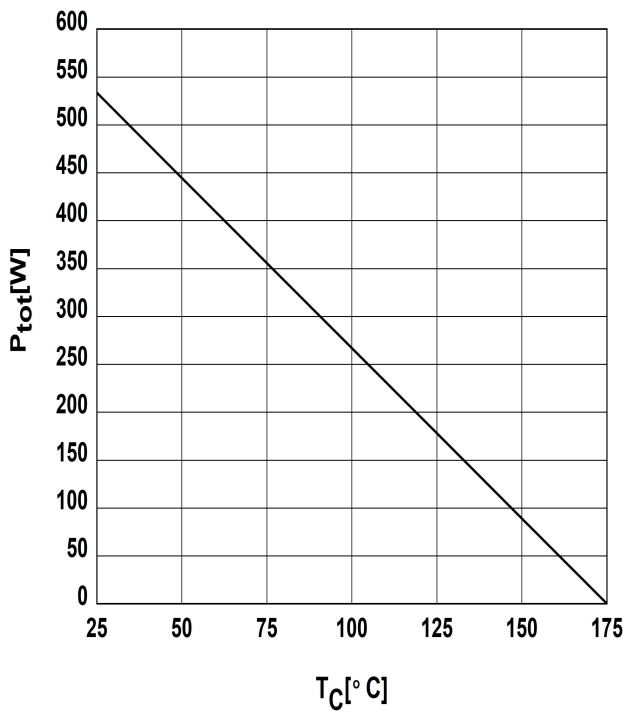


Figure.1 Power dissipation

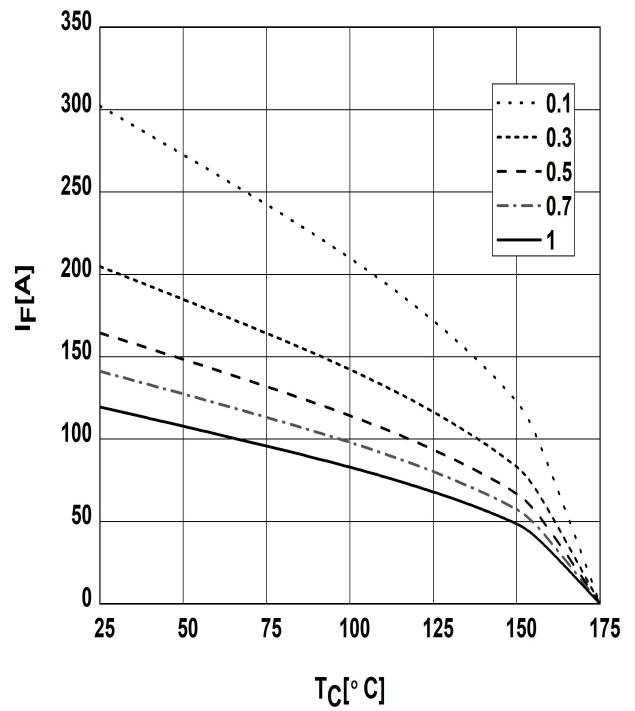


Figure.2 Diode forward current

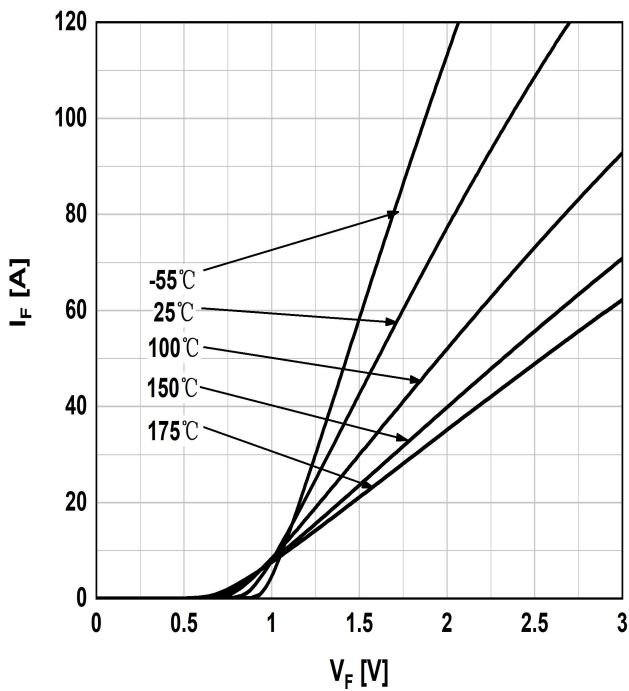


Figure.3 Typical forward characteristics

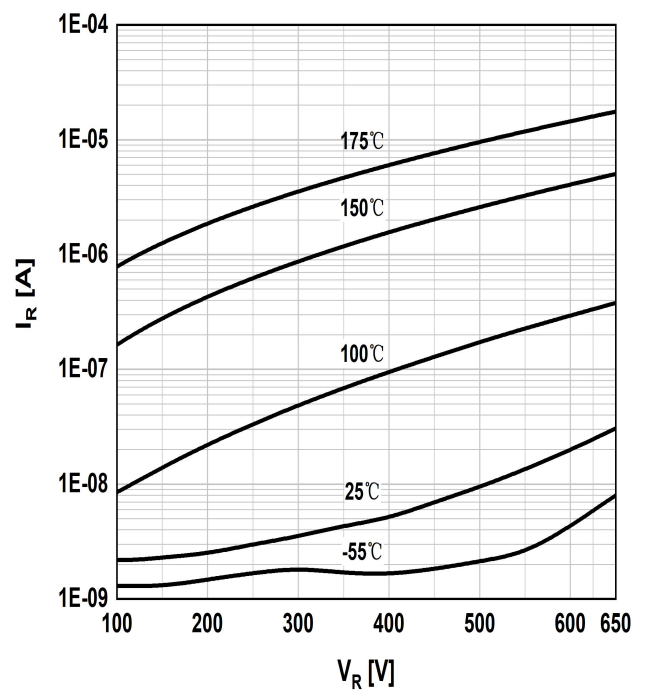


Figure.4 Reverse current vs. reverse voltage

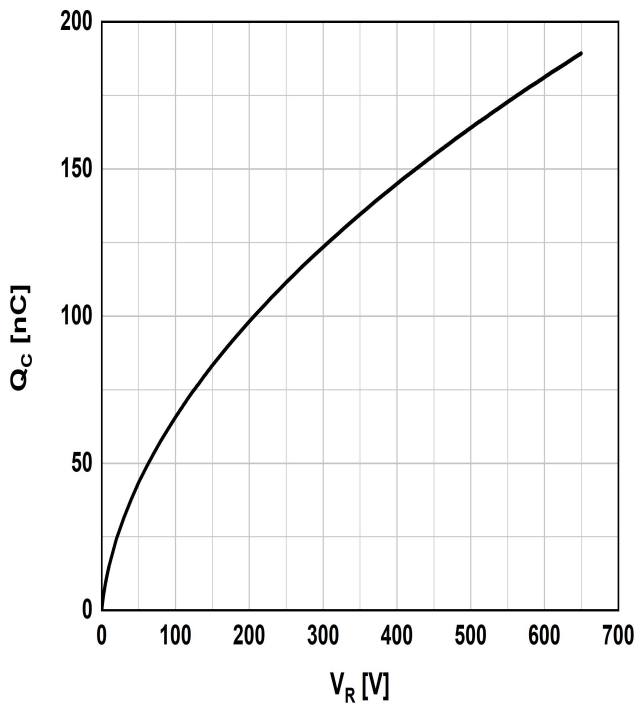


Figure.5 Capacitance charge vs. reverse voltage

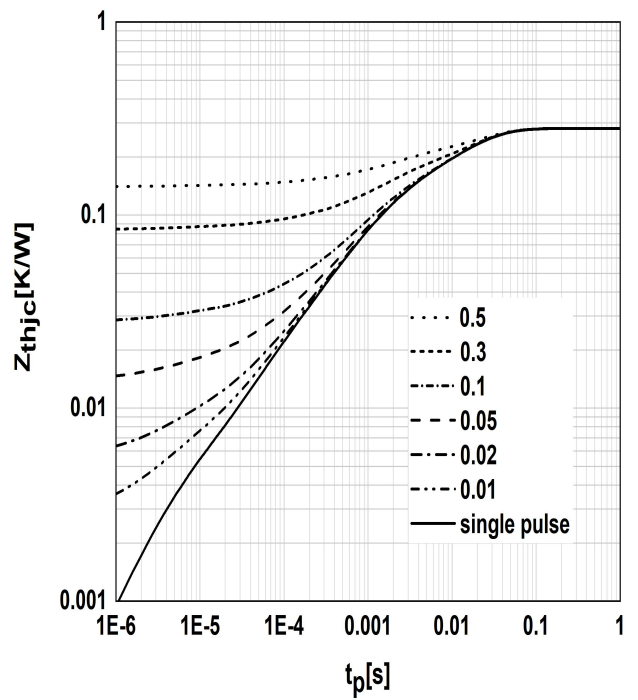


Figure.6 Transient thermal impedance

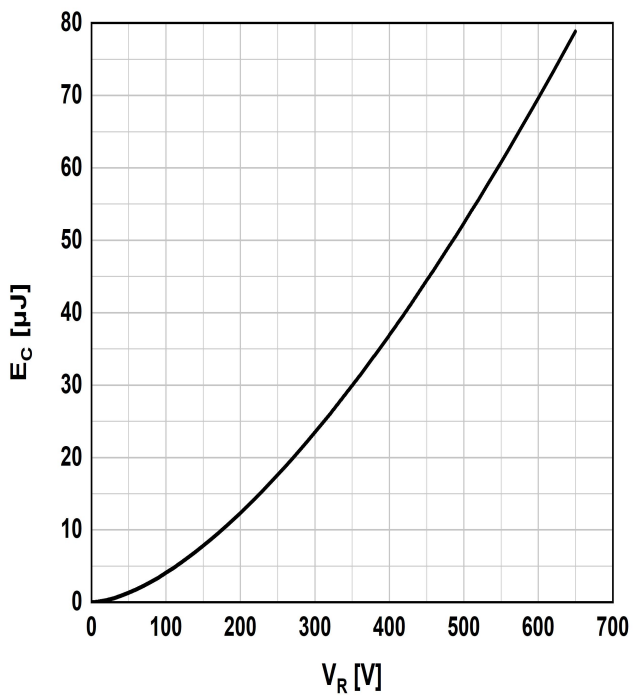


Figure.7 Capacitance stored energy

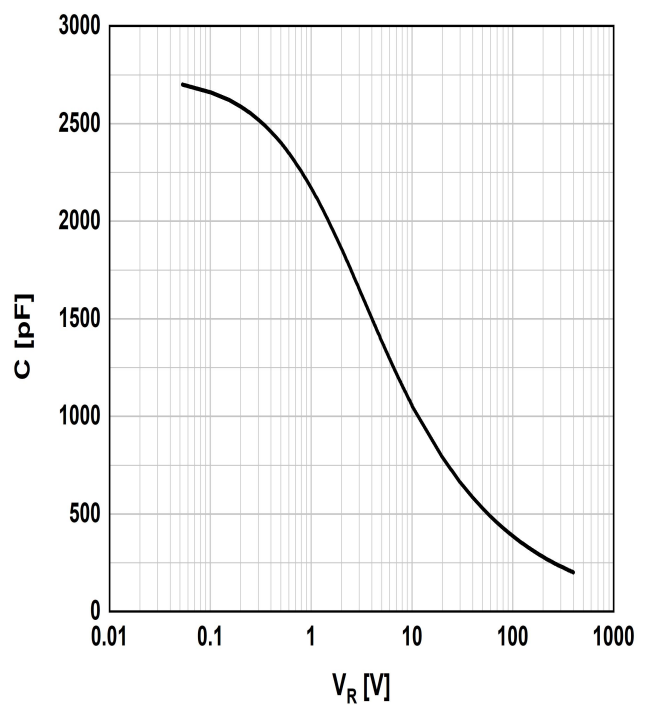


Figure.8 Capacitance vs. reverse voltage



Package outlines

