芯科半导体

ELECTRONIC PRODUCT

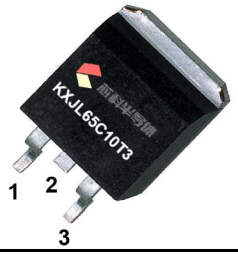
浙江芯科半导体有限公司

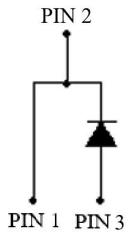
Features

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

Part NO.		KXJL65C10T3
V_{RRM}	=	650 V
$I_F(T_C=140°C)$	=	10 A
Q_C	=	52 nC

Package: TO-263-3





Applications

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

Key performance parameters

Symbol	Parameter	Test conditions	Value	Unit	Note
V_{RRM}	Repetitive peak reverse voltage	T_C= 25°C	650	V	
V_{RSM}	Surge peak reverse voltage (DC)	T_C= 25°C	650	V	
I_F	Continuous forward current	T_C= 25°C, D=1 T_C= 140°C, D=1 T_C= 150°C, D=1	27 10 8	A	Fig.6
I_{FRM}	Repetitive forward surge current	t_p= 10 ms, Half sine wave T_C= 25°C T_C= 150°C	 72 60	A	
I_{FSM}	Non-repetitive forward surge current	t_p= 10 ms, Half sine wave T_C= 25°C T_C= 150°C	 86 62	A	
$\int i^2dt$	i^2t value	T_C= 25°C, t_p= 10 ms	25	A^2s	
P_{tot}	Total power dissipation	T_C= 25°C	81	W	Fig.7
T_j	Operating junction temperature		-55 ~ 175	°C	
T_{stg}	Storage temperature		-55 ~ 175	°C	
t_{rr}	Reverse recovery time	V_R=400 V, I_F=10 A, di/dt=200 A/μs	14.6	ns	

Static electrical characteristics

Symbol	Parameter	Test conditions	Value			Unit	Note
			Min.	Typ.	Max.		
V_{DC}	DC blocking voltage	I_R= 50 μA, T_j= 25°C	700	-	-	V	
V_F	Diode forward voltage	I_F= 10 A, T_j= 25°C	-	1.42	-	V	Fig.1
		I_F= 10 A, T_j= 150°C	-	1.75	-		
I_R	Reverse current	V_R= 650 V, T_j= 25°C	-	0.2	100	μA	Fig.2
		V_R= 650 V, T_j= 150°C	-	10	400		
C	Total capacitance	V_R= 0.1 V, T_j= 25°C, f= 1 MHz	-	953	-	pF	Fig.5
		V_R= 200 V, T_j= 25°C, f= 1 MHz	-	97	-		
		V_R= 400 V, T_j= 25°C, f= 1 MHz	-	70	-		
Q_C	Total capacitive charge	V_R= 400 V, T_j= 25°C	-	52	-	nC	Fig.3
E_C	Capacitance stored energy	V_R= 400 V, T_j= 25°C	-	13	-	μJ	Fig.4

Thermal characteristics

Symbol	Parameter	Value		Unit	Note
		Typ	Max		
$R_{\theta JC}$	Thermal resistance from junction to case	1.2	1.9	°C/W	Fig.8

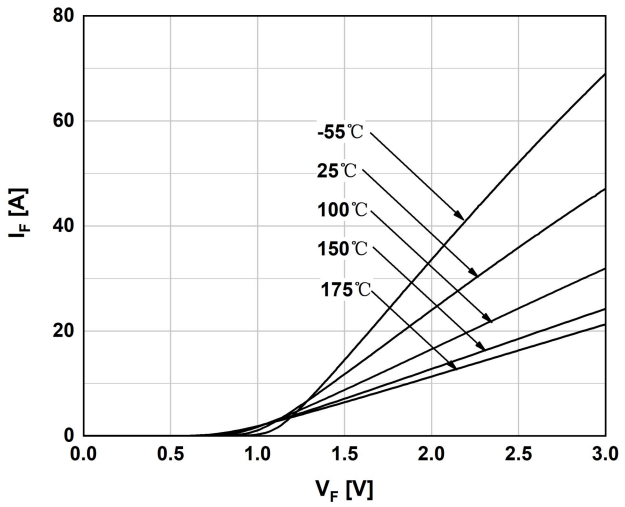


Figure.1 Typical forward characteristics

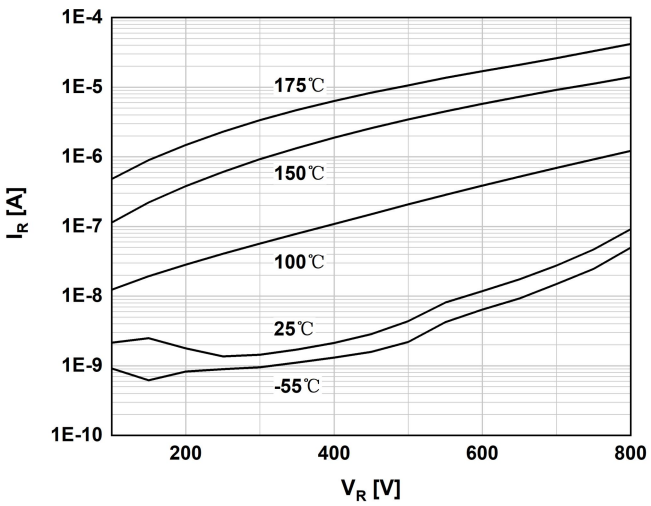


Figure.2 Reverse current vs. reverse voltage

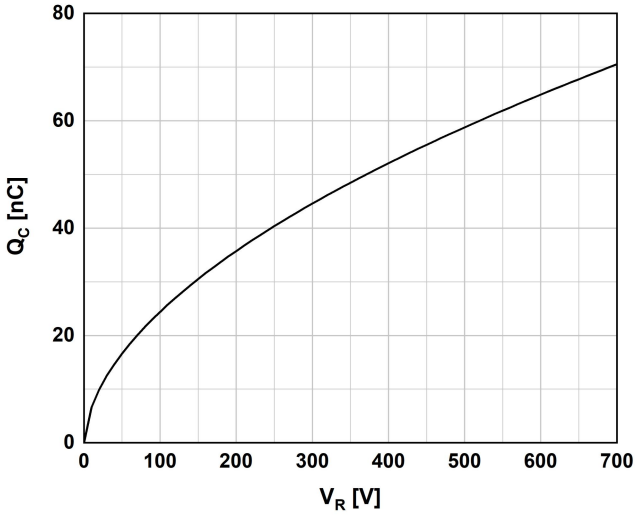


Figure.3 Capacitance charge vs reverse voltage

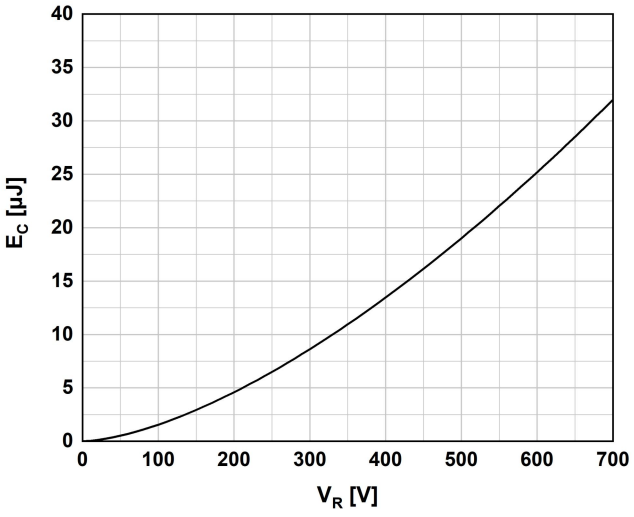


Figure.4 Capacitance stored energy

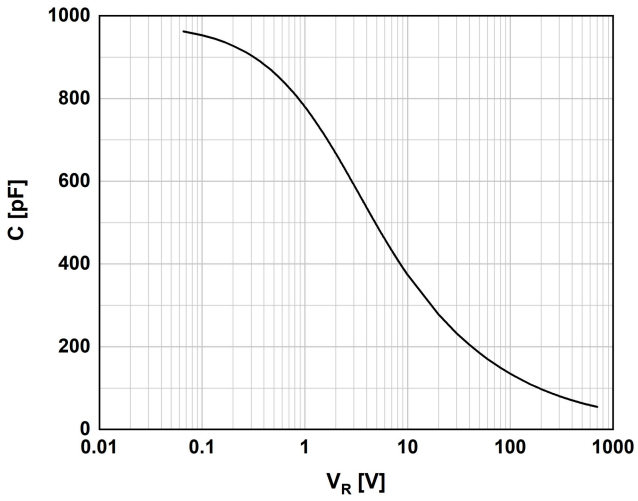


Figure.5 Capacitance vs. reverse voltage

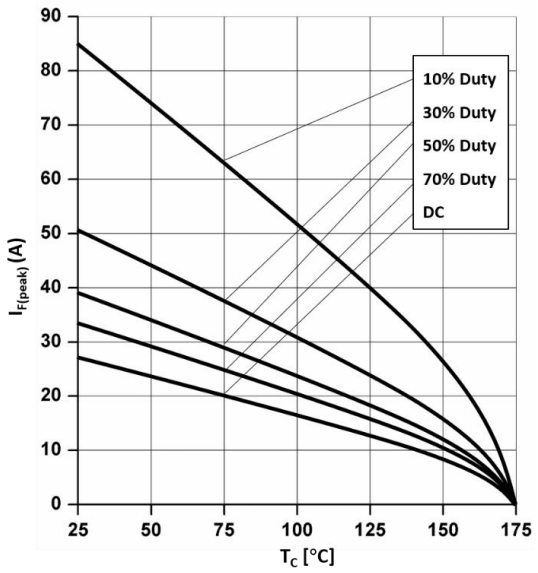


Figure.6 Diode forward current

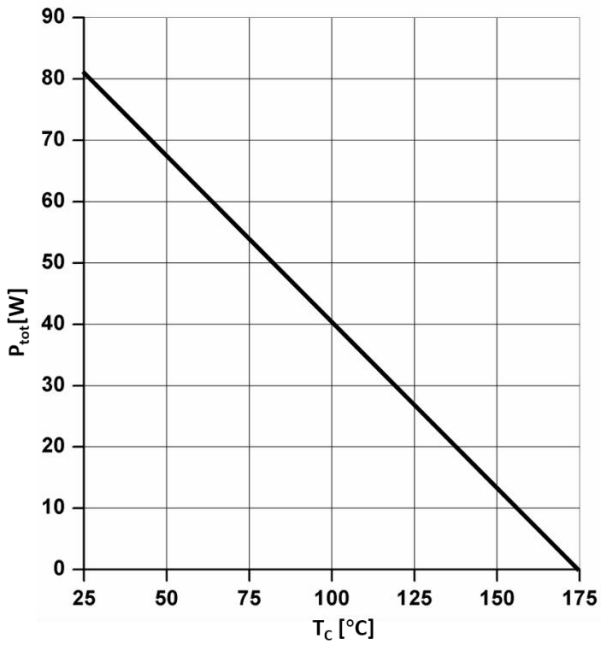


Figure.7 Power dissipation

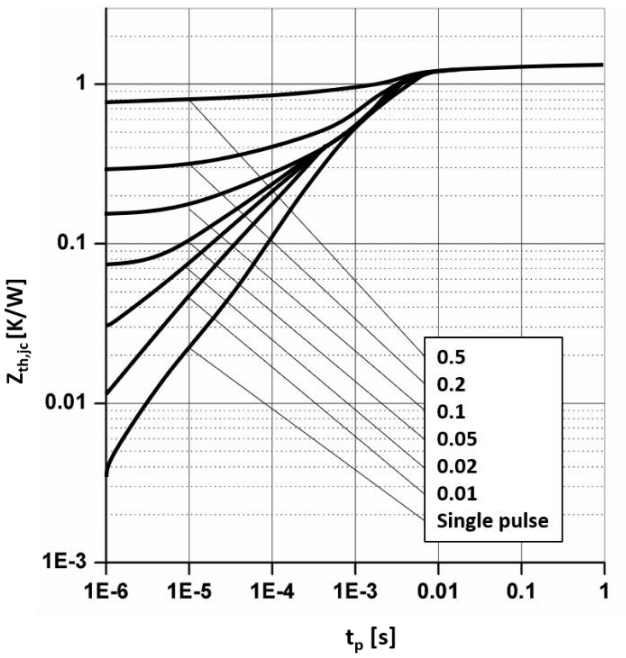
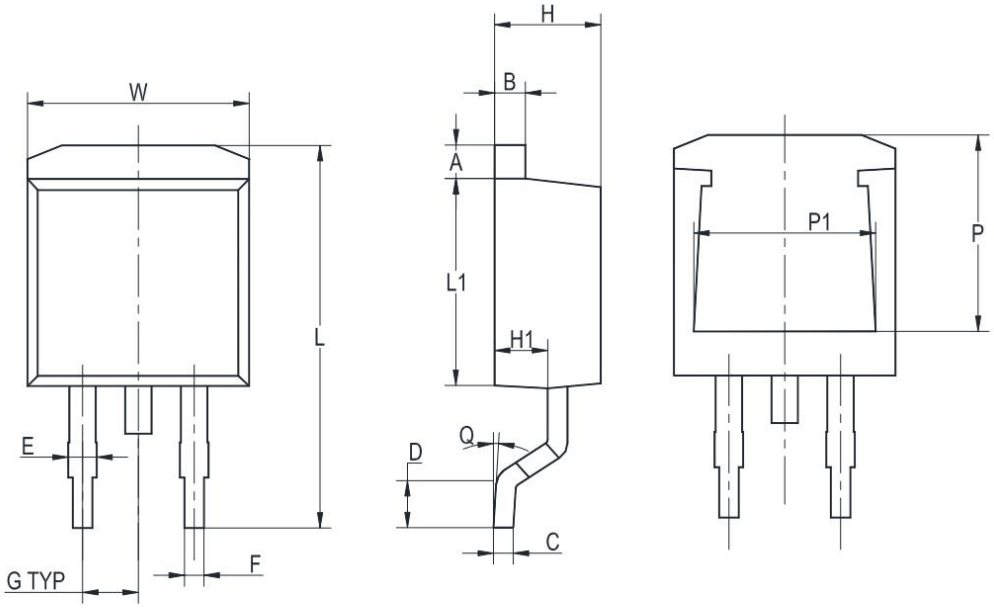


Figure.8 Transient thermal impedance

Package outlines (Units: mm) TO-263-3



UNIT	A	B	C	D	E	F	G	W	H	H1	L	L1	Q	P	P1
mm	1.5	1.5	0.5	2.60	1.6	0.94	2.54 TYP	10.5	4.8	2.9	16.5	8.7	8° MAX	7.6	8.2
	1.1	1.1	0.3	2.15	1.1	0.68		9.6	4.4	2.5	14.5	8.2		7.1	7.4