KJSC65C8T2

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

Benefits

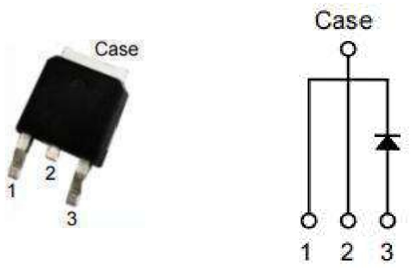
✓ Increased Power Density
✓ Essentially no Switching Losses
✓ Reduction of Heat Sink Requirements
✓ Higher Efficiency
✓ Reduced EMI

Applications

✓ Uninterruptible power supplies
✓ Switch mode power supplies (SMPS)
✓ Power Factor Correction
✓ Motor Drivers

Part NO. KJ65C8T2
V_{RRM} = 650 V
$I_F(T_C=$ = 8A
160°C) Q_C = 38nC

Package:TO-252-2



Maximum ratings (T_j=25°C unless otherwise specified)

Symbol	Parameter	Test conditions	Value	Unit
V_{RRM}	Repetitive peak reverse voltage		650	V
I_F	Continuous forward current	T_C=25°C T_C=160°C	40 8	A
I_{FSM}	Non-Repetitive forward surge current	T_C=25°C , t_p=10ms, Half Sine Wave	85	A
$\int i^2dt$	i^2t value	Tc=25°C, tp=10ms	36	A^2S
P_{tot}	Power dissipation	Tc=25°C Tc=110°C	151 65	W
T_j	Operating junction temperature		-55~175	°C
T_{stg}	Storage temperature		-55~175	°C

Electrical Characteristics

Static Characteristics

Symbol	Parameter	Test conditions	Value			Unit
			Min.	Typ.	Max.	
V_{DC}	DC blocking voltage	T_j=25°C	650			V
V_F	Diode forward voltage	I_F=8A,T_j=25°C I_F=8A,T_j=135°C I_F=8A,T_j=175°C		1.25 1.27 1.33	1.42 1.53 1.74	V
I_R	Reverse current	V_R=650V ,T_j=25°C V_R=650V ,T_j=175°C		1 9	50 200	µA

AC Characteristics

Symbol	Parameter	Test conditions	Value			Unit
			Min.	Typ.	Max.	
Q_C	Total capactive charge	V_R=400V , T_j=25°C $Q_C = \int_0^{V_R} C(V)dV$		38		nC
C	Total capacitance	V_R=1V f=1MHz V_R=300V f=1MHz V_R=600V f=1MHz		551 63 57		pF
E_C	Capacitance stored energy	V_R=400V		5.7		µJ

Thermal Characteristics

Symbol	Parameter	Value			Unit
		Min.	Typ.	Max.	
$R_{th(j\text{-}c)}$	Thermal Resistance from Junction to Case		0.99		° C/W

Typical Performance

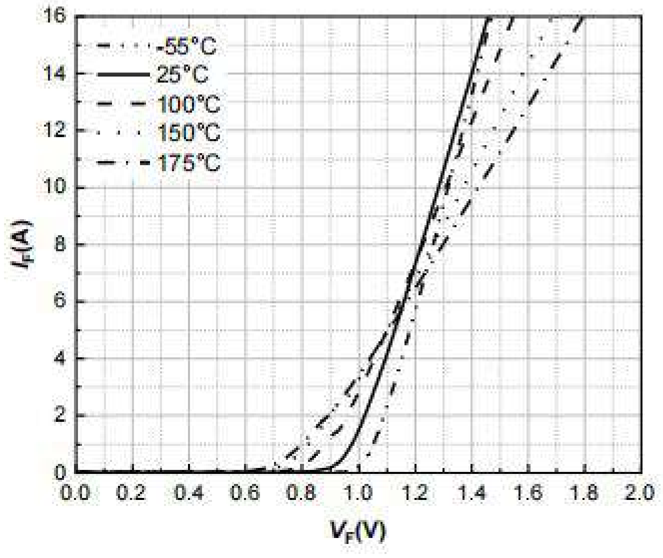


Figure 1. Typical forward characteristics

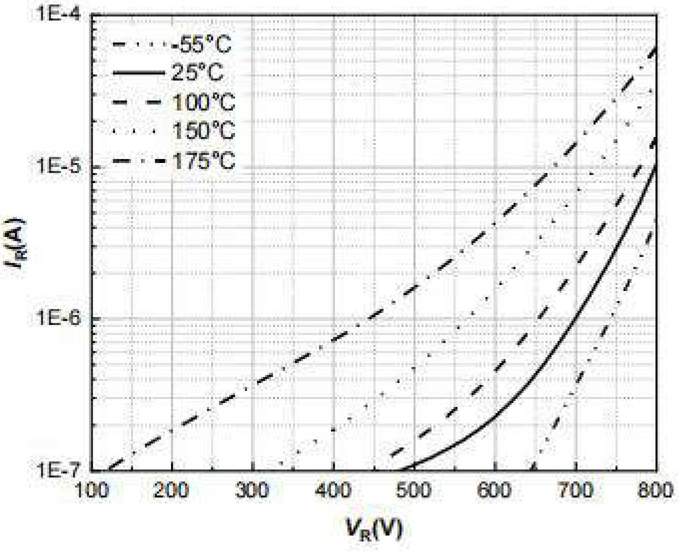


Figure 2. Typical reverse current as function of reverse voltage

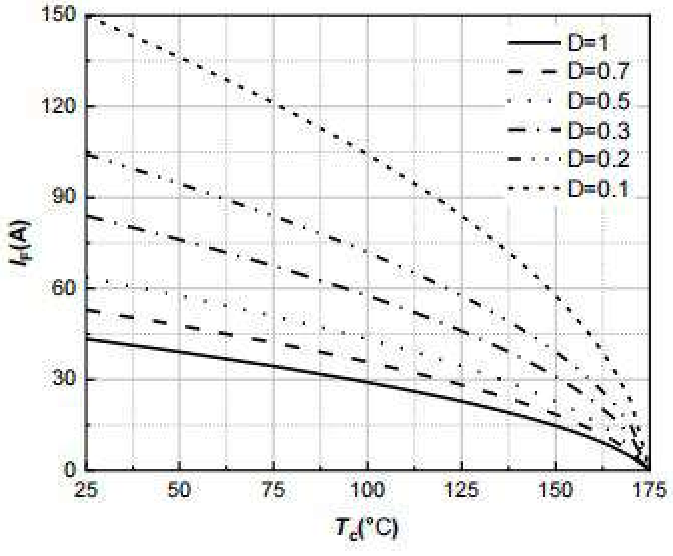


Figure 3. Diode forward current as function of temperature, D=duty cycle

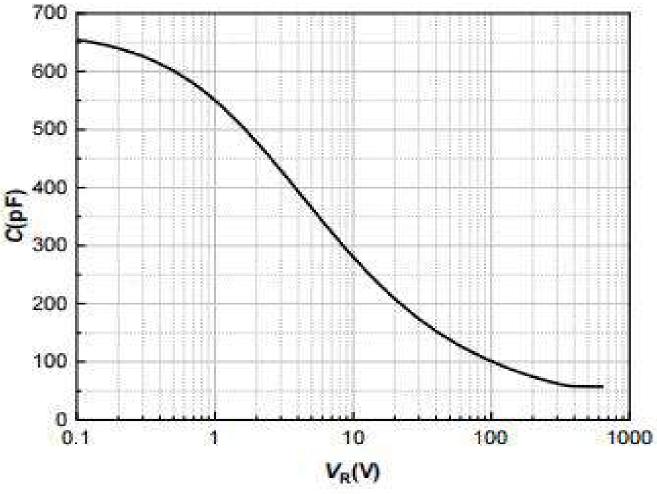


Figure 4.Typical capacitance as function of reverse voltage, C=f(V_R); T_j=25℃; f=1 MHz

Typical Characteristics

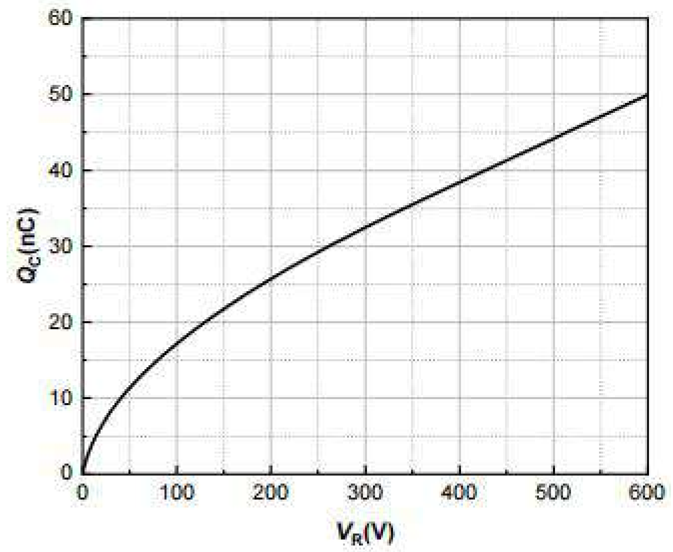


Figure 5. Typical reverse charge as function of reverse voltage

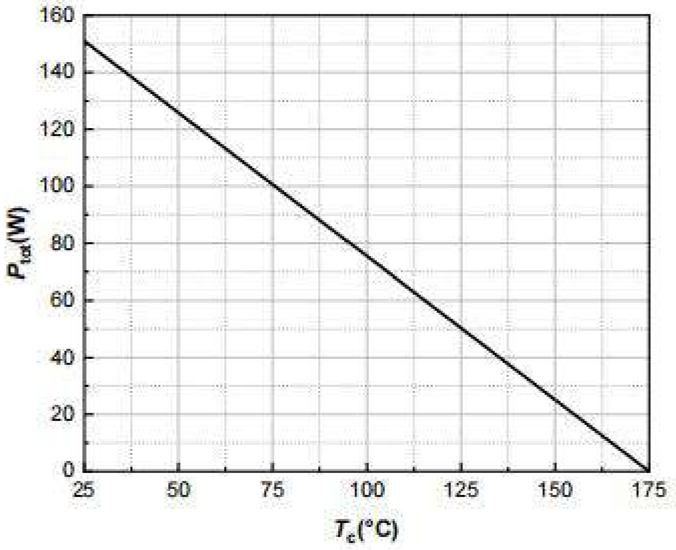


Figure 6. Power dissipation as function of case temperature

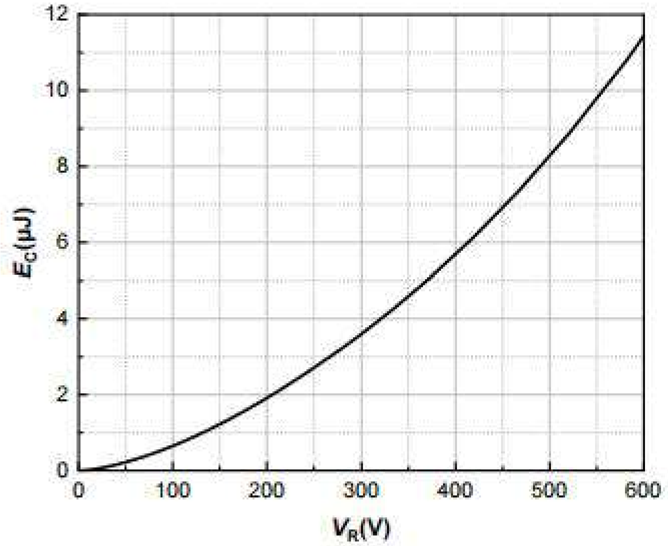


Figure 7.Capacitance stored energy

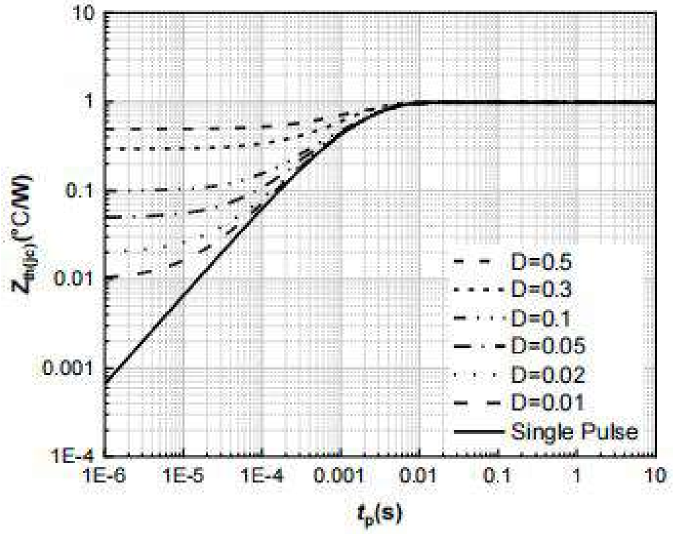
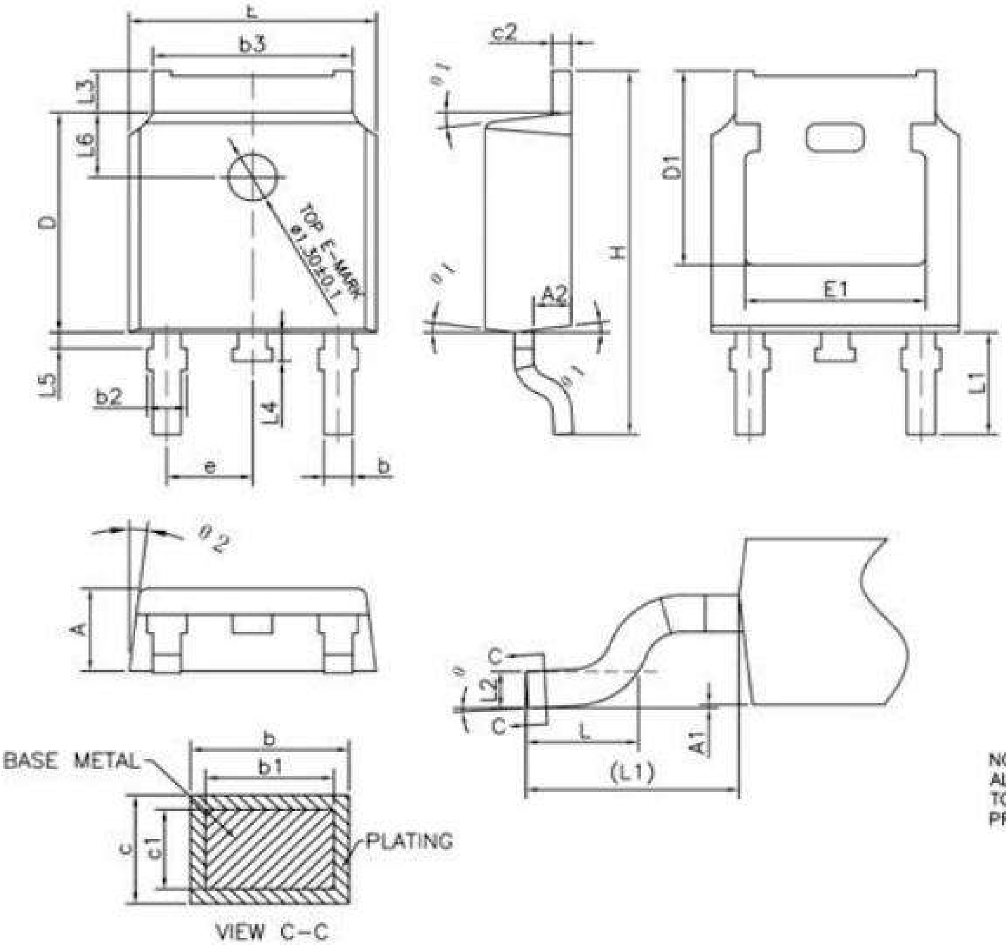


Figure 8. Max. transient thermal impedance, Zth(jc)= f(tp), parameter: D =tp/T

Package Outline Dimensions

Package outlines



COMMON DIMENSIONS
(UNITS OF MEASURE =MILLIMETER)

SYMBOL	MIN	NOM	MAX
A	2.20	2.30	2.38
A1	0	---	0.10
A2	0.90	1.01	1.10
b	0.72	---	0.85
b1	0.71	0.76	0.81
b2	0.72	---	0.90
b3	5.13	5.33	5.46
c	0.47	---	0.60
c1	0.46	0.51	0.56
c2	0.47	---	0.60
D	6.00	6.10	6.20
D1	5.25	---	---
E	6.50	6.60	6.70
E1	4.70	---	---
e	2.186	2.286	2.386
H	9.80	10.10	10.40
L	1.40	1.50	1.70
L1		2.90 REF	
L2		0.508 BSC	
L3	0.90	---	1.25
L4	0.60	0.80	1.00
L5	0.15	---	0.75
L6		1.80 REF	
θ	0°	---	8°
θ1	5°	7°	9°
θ2	5°	7°	9°

NOTES:
ALL DIMENSIONS REFER TO JEDEC STANDARED TO-252 AA DO NOT INCLUDE MOLD FLASH OR PROTRUSIONS