FDC2PT08S65

SiC Schottky Barrier Diode

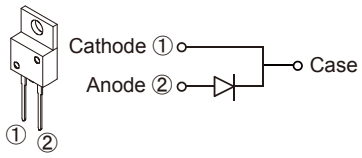
Features

- New 2nd Generation Technology
- Low forward voltage
- High surge current capability
- High speed switching
- Pb-free lead terminal; RoHS compliant
- Halogen-free molding compound

Applications

- Switch mode power supply
- Uninterruptible power supply
- PV Power Conditioner

Internal circuit chart



TO-220-2

Maximum Ratings and Characteristics

● **Absolute Maximum Ratings at T_{vj} = 25°C(unless otherwise specified)**

Parameter	Symbol	Value	Unit	Remarks
Repetitive peak reverse voltage	V_{RRM}	650	V	
Continuous forward current	I_F	8	A	T_c < 128 °C, D = 1
Surge non-repetitive forward current (half sine wave)	I_{FSM}	68.0	A	T_c = 25 °C, t_p = 10 ms
		51.0	A	T_c = 150 °C, t_p = 10 ms
I^2t value	$\int I^2dt$	23.1	A^2s	T_c = 25 °C, t_p = 10 ms
		13.0	A^2s	T_c = 150 °C, t_p = 10 ms
Max. Power Dissipation	P_{tot}	55	W	T_c = 25 °C
Operating junction temperature	T_{vj}	175	°C	
Storage temperature	T_{stg}	-55 ~ +175	°C	

● **Electrical Characteristics at T_{vj} = 25°C(unless otherwise specified)**

Static characteristics

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
DC blocking voltage	V_{DC}	I_R = 1 mA	650	-	-	V
Forward voltage	V_F	I_F = 8 A, T_{vj} = 25 °C	1.10	1.30	1.50	V
		I_F = 8 A, T_{vj} = 150 °C	-	1.48	1.99	V
Reverse current	I_R	V_R = 650 V, T_{vj} = 25 °C	-	0.28	40	μA
		V_R = 650 V, T_{vj} = 150 °C	-	1.5	160	μA

Dynamic characteristics

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Total Capacitive Charge	Q_C	V_R = 400 V, I_F = 8 A, -di/dt = 200 A/μs, T_{vj} = 150 °C	-	7.9	-	nC
Total Capacitance	C	V_R = 400 V, f = 1 MHz	-	37	-	pF

● **Thermal Resistance**

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal Resistance, Junction –Ambient	$R_{th(j-a)}$	-	-	62	°C/W
Thermal Resistance, Junction –Case	$R_{th(j-c)}$	-	-	2.72	°C/W

Figure 1. Allowable power dissipation

$P_{tot} = f(T_c)$

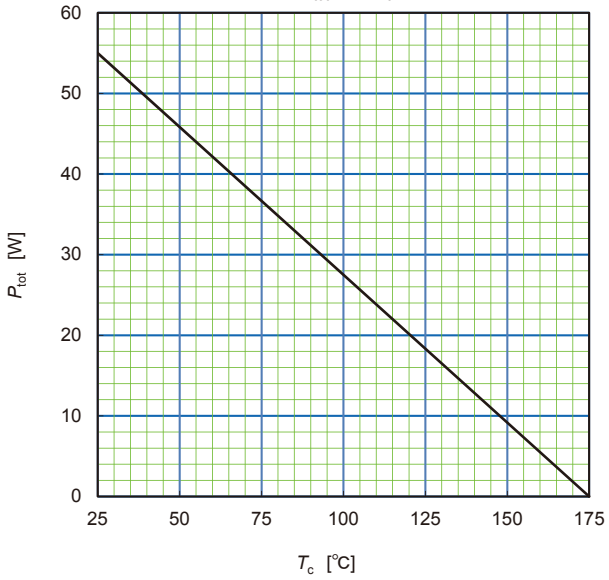


Figure 2. Peak forward current

$I_F = f(T_c)$: $T_{vj} \leq 175$ °C, $R_{th(j\text{-}c)\,max.}$

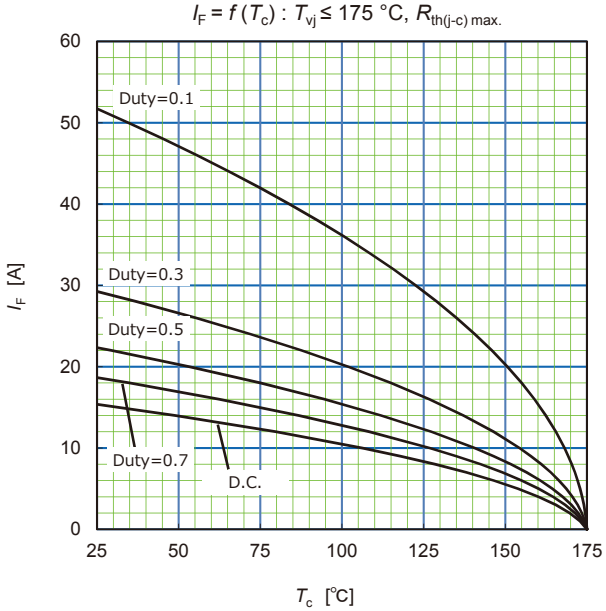


Figure 3. Typical forward characteristics

$I_F = f(V_F)$

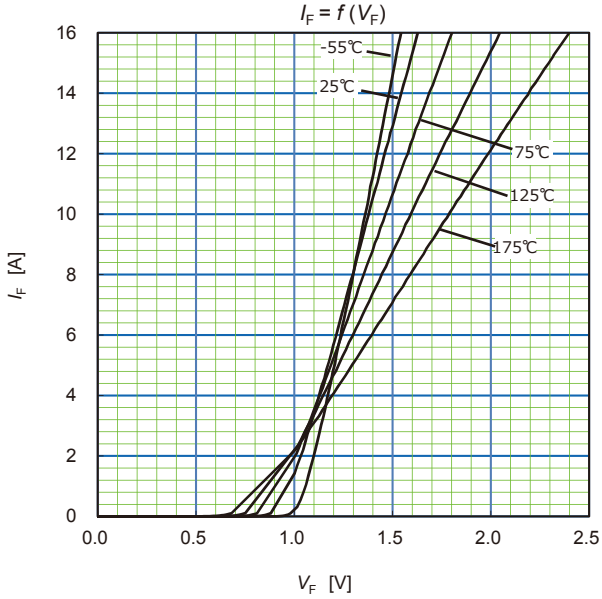


Figure 4. Typical forward characteristics

$I_F = f(V_F)$

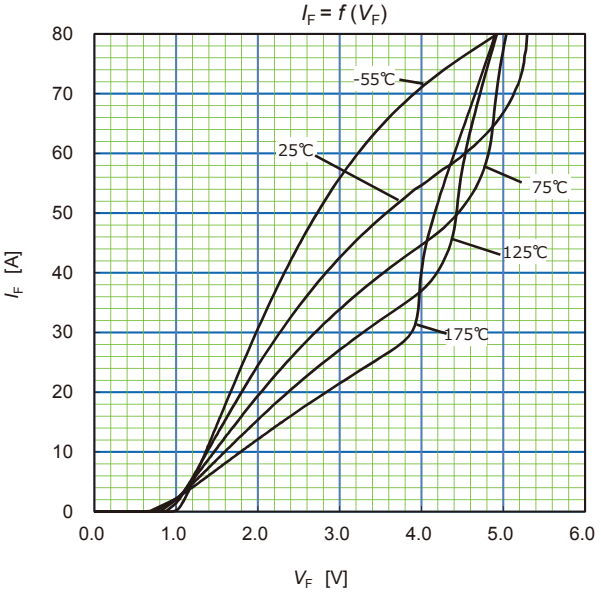


Figure 5. Typical reverse characteristics

$I_R = f(V_R)$

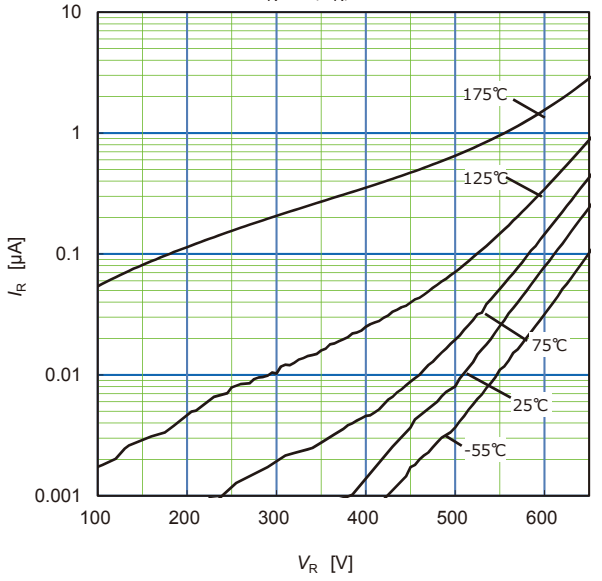


Figure 6. Typical capacitance

$C = f(V_R)$: f = 1 MHz

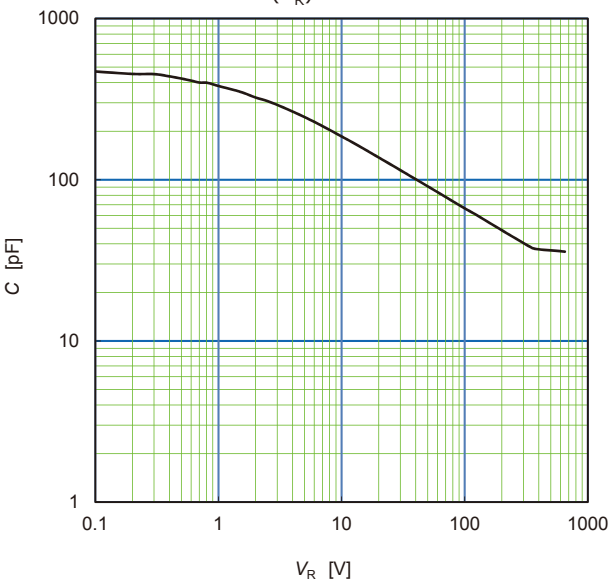


Figure 7. Typical capacitance stored energy

$E_C = f(V_R)$

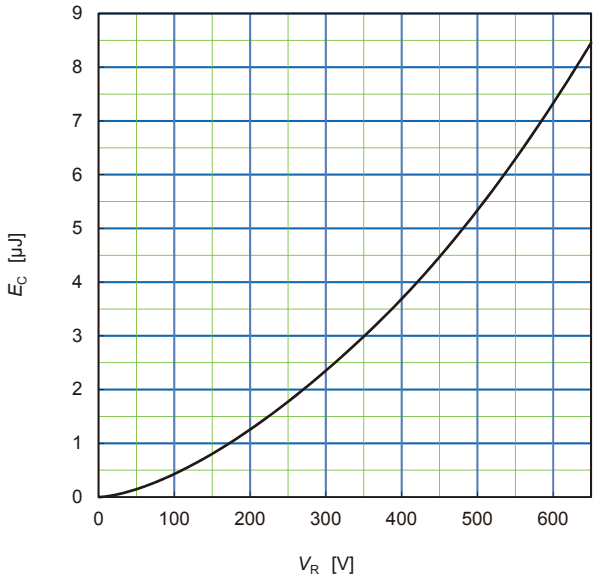
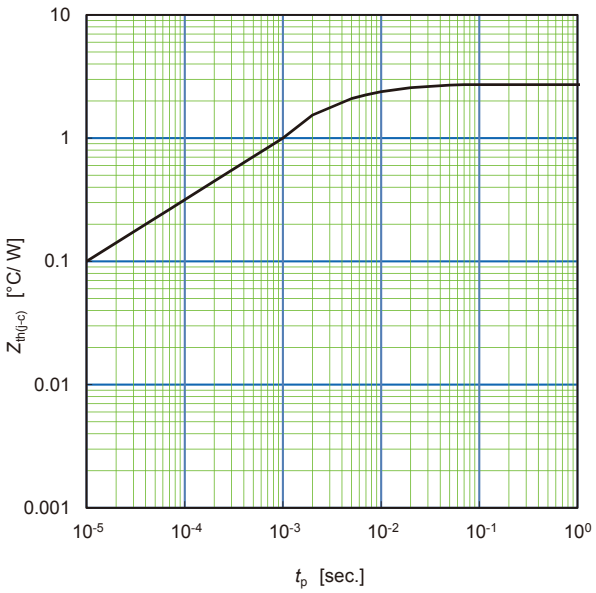
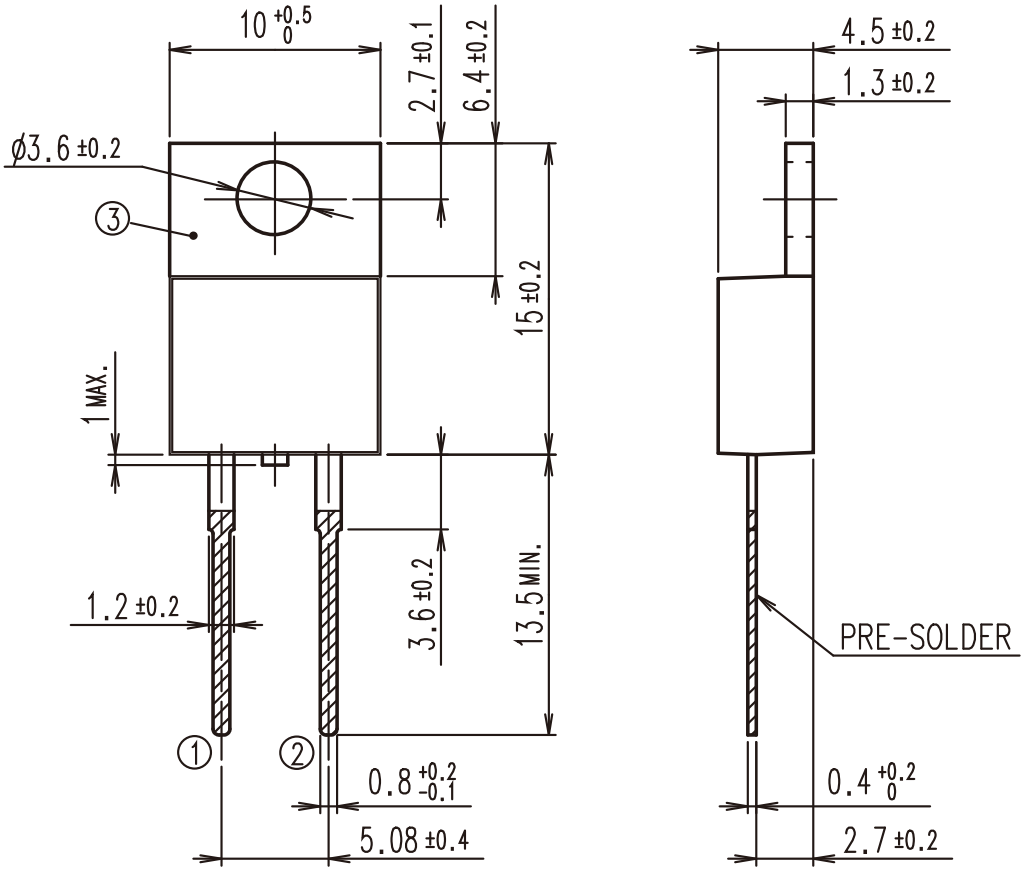


Figure 8. Transient Thermal Impedance

$Z_{th(j-c)} = f(t) : D = 0$



Outview: TO-220-2 Package



CONNECTION

① : Cathode terminal

② : Anode terminal

③ : Case (Cathode potential)

DIMENSIONS ARE IN MILLIMETERS

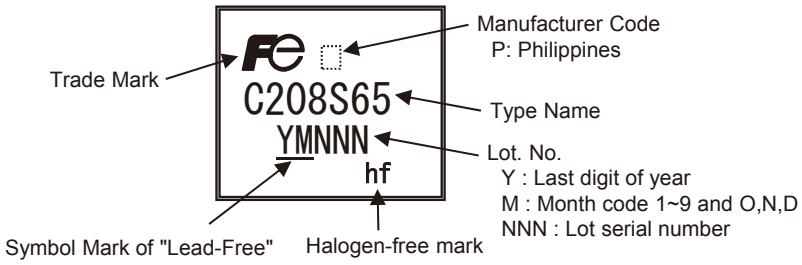
Cautions

Please ensure insulation between the heat sink and the product before use.

The cathode potential on the backside of the products is not intended to be used as a conduction path.

When TO-220 is screwed down, use an insulating bushing.

Marking



* The font (font type, size) and the trademark-size might be actually different.

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