

$V_{RM} = 80\text{ V}$, $I_{F(AV)} = 45\text{ A}$
Schottky Diode
SZ-10EF

Description

SZ-10EF is 80 V, 45 A Schottky diode for automotive, and has low leakage current and low forward voltage drop. These characteristics provide high efficiency rectification circuit. The low thermal resistance package achieves high performance in terms of heat dissipation.

Features

- V_{RM} ----- 80 V
- $I_{F(AV)}$ ----- 45 A
- V_F ($I_F = 45\text{ A}$)----- 0.75 V (typ.)
- $H \cdot I_R$ ($T_J = 150\text{ }^\circ\text{C}$)----- 50 mA (max.)
- Repetitive Avalanche Power----- 3 kW
- RoHS Compliant
- Flammability UL94V-0 (Equivalent)
- Anode Heatsink Package

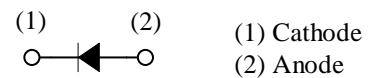
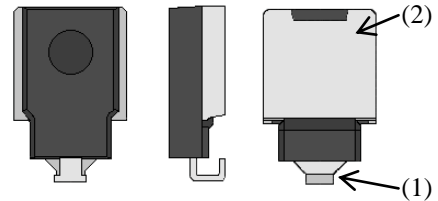
Application

The high speed switching applications as follows:

- DC/DC Converter
- Secondary Rectifier Circuit
- Adapter

Package

SZ-10



Not to scale

SZ-10EF

Absolute Maximum Ratings

Unless specifically noted $T_A = 25\text{ }^\circ\text{C}$.

Parameter	Symbol	Conditions	Rating	Unit
Repetitive Peak Reverse Voltage	V_{RM}		80	V
Average Forward Current	$I_{F(AV)}$	$t/T \geq 1/4$, see Figure 3 and Figure 4.	45	A
Surge Forward Current	I_{FSM}	Half cycle sine wave, positive side, 10 ms 1 shot	300	A
Repetitive Avalanche Power	P_{AR}	$t_p = 10\text{ }\mu\text{s}$, see Figure 1	3	kW
Junction Temperature	T_J		-40 to 150	$^\circ\text{C}$
Storage Temperature	T_{STG}		-40 to 150	$^\circ\text{C}$

Electrical Characteristics

Unless specifically noted $T_A = 25\text{ }^\circ\text{C}$.

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Forward Voltage Drop	V_F	$I_F = 45\text{ A}$	—	0.75	0.82	V
Reverse Leakage Current	I_R	$V_R = V_{RM}$	—	1	50	μA
Reverse Leakage Current Under High Temperature	$H \cdot I_R$	$V_R = V_{RM}$, $T_J = 150\text{ }^\circ\text{C}$	—	10	50	mA
Thermal Resistance ⁽¹⁾	$R_{th(J-F)}$		—	0.40	0.65	$^\circ\text{C/W}$

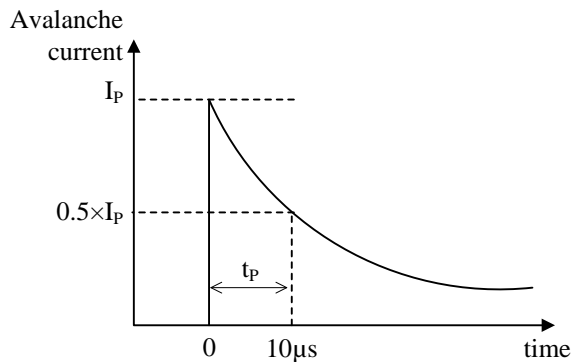


Figure 1. Definition of pulse width, t_p

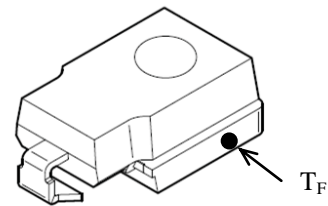


Figure 2. Frame temperature measurement point

⁽¹⁾ $R_{th(J-F)}$ is thermal resistance between junction and frame with infinite heatsink. Lead temperature is measured at anode frame (see Figure 2).

Rating and Characteristic Curves

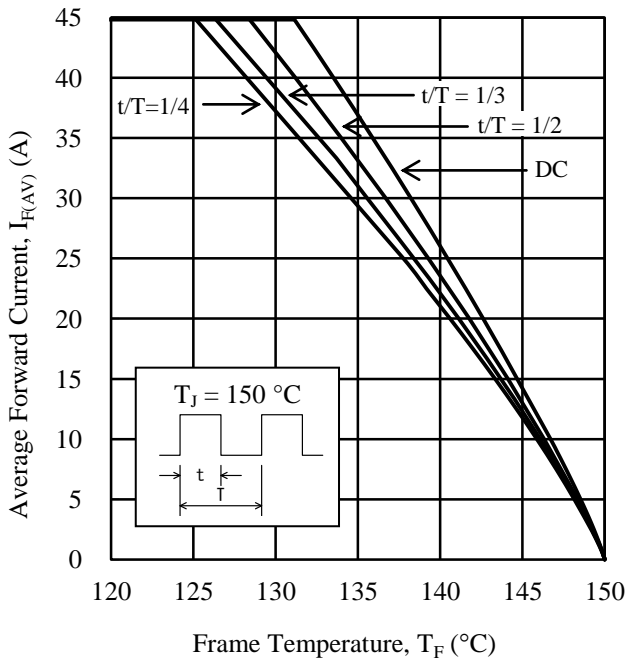


Figure 3. T_C vs. $I_{F(AV)}$ Typical Characteristics ($V_R = 0\text{ V}$, $R_{th(J-F)} = 0.65\text{ °C/W}$)

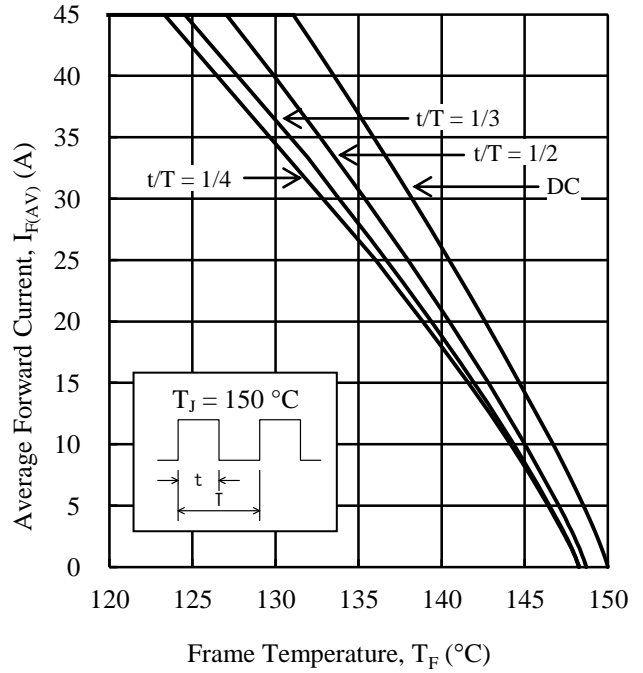


Figure 4. T_C vs. $I_{F(AV)}$ Typical Characteristics ($V_R = 80\text{ V}$, $R_{th(J-F)} = 0.65\text{ °C/W}$)

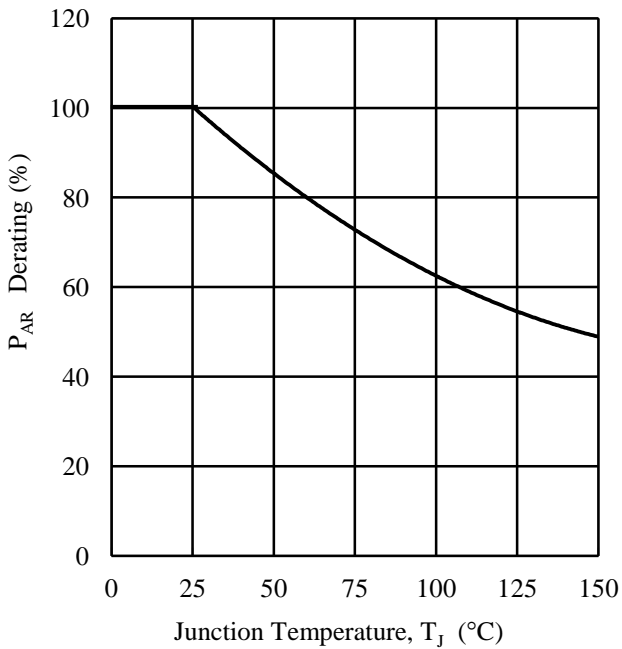


Figure 5. P_{AR} vs. T_J Typical Characteristics ($t_p = 10\text{ }\mu\text{s}$)

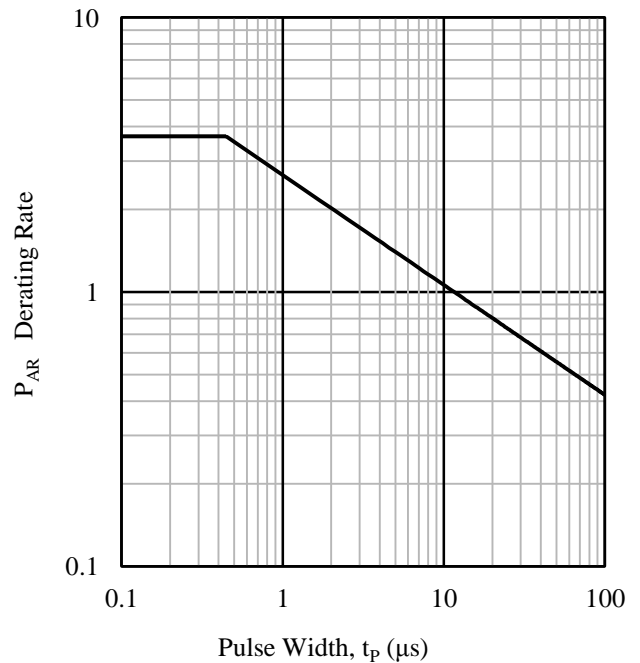


Figure 6. P_{AR} vs. t_p Typical Characteristics ($T_J = 25\text{ °C}$)

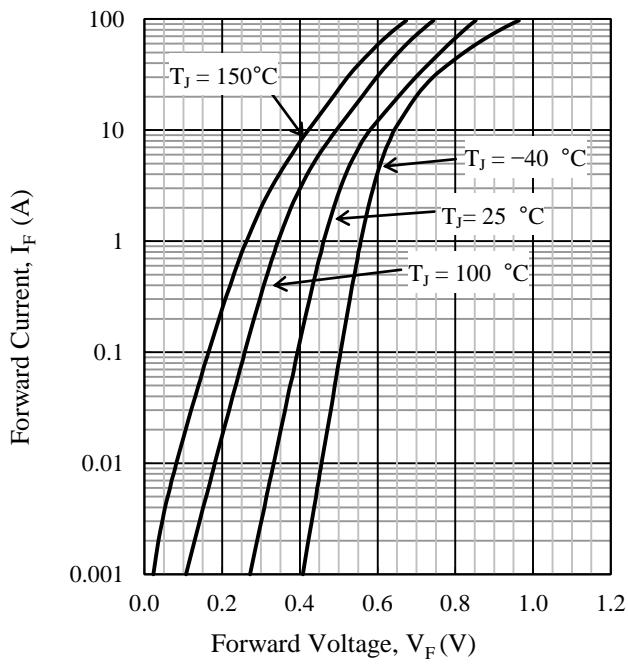


Figure 7. V_F vs. I_F Typical Characteristics

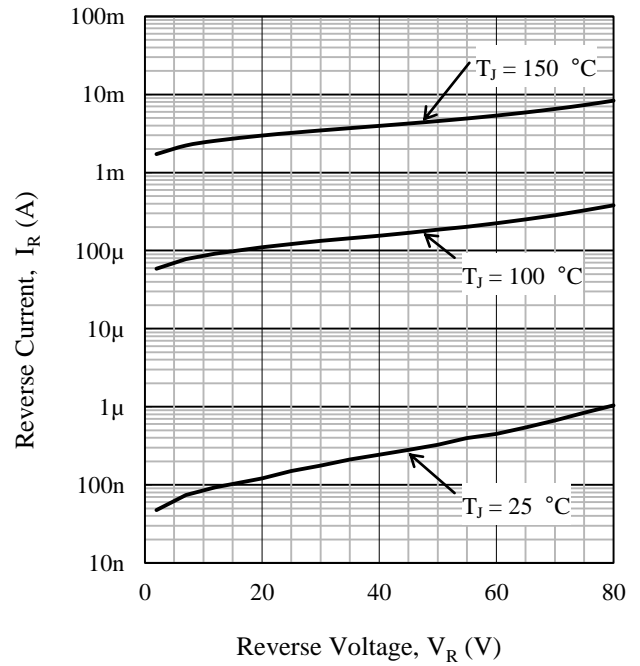
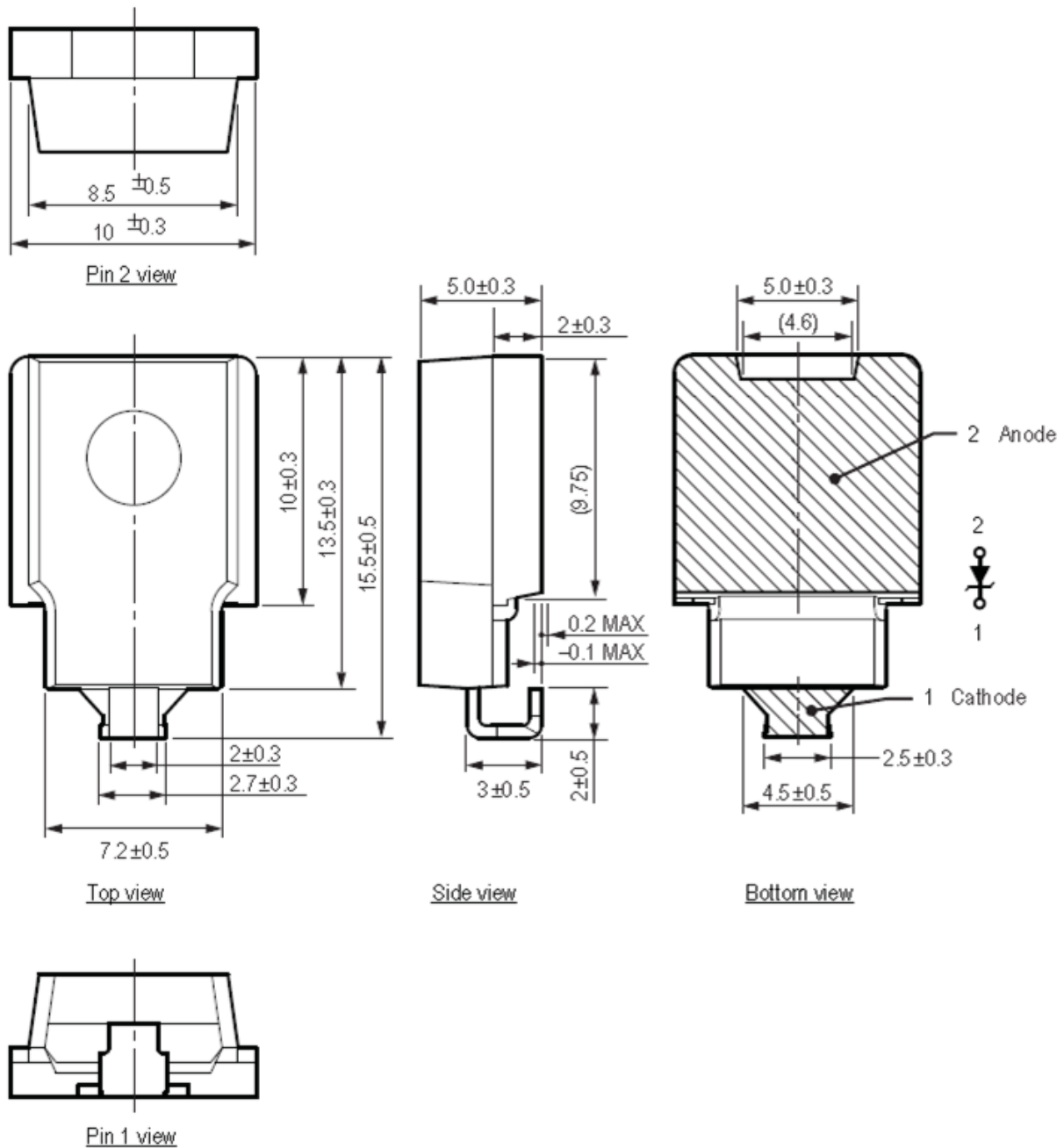


Figure 8. V_R vs. I_R Typical Characteristics

SZ-10EF

Physical Dimensions

• SZ-10 Package

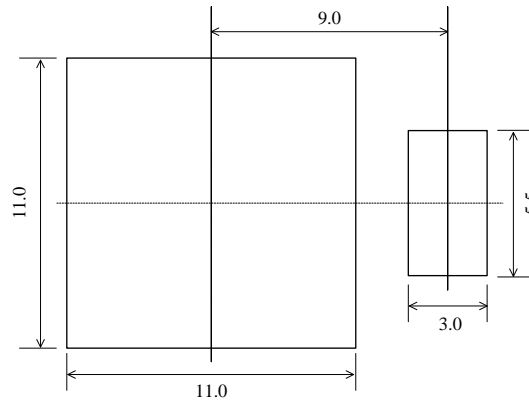


NOTES:

- Dimensions in millimeters
- Bare lead frame: Pb-free (RoHS compliant)
- When soldering the products, be sure to minimize the working time, within the following limits:
 - Flow: $260 \pm 5 \text{ }^\circ\text{C} / 10 \pm 1 \text{ s}$, 2 times
 - Soldering Iron: $380 \pm 10 \text{ }^\circ\text{C} / 3.5 \pm 0.5 \text{ s}$, 1 time
- MSL: JEDEC LEVEL3

SZ-10EF

• SJP Land Pattern Example



NOTE:

- Dimensions in millimeters

Marking Diagram

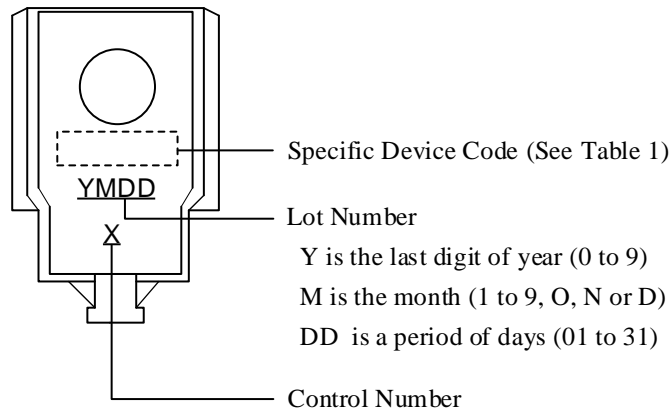


Table 1. Specific Device Code

Specific Device Code	Products
EF48	SZ-10EF

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