

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

Description

The SZ-10EF is an 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
- Bare Lead Frame: Pb-free (RoHS Compliant)
- Flammability UL94V-0 (Equivalent)
- Suitable for High Reliability and Automotive Requirement
- Anode Heatsink Package

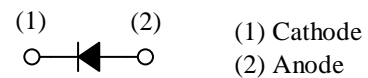
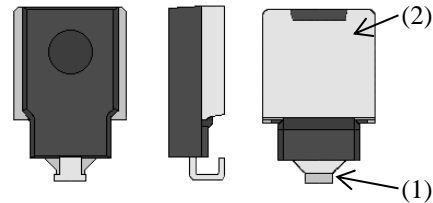
Applications

High speed switching applications as follows:

- DC/DC Converter
- Secondary Rectifier Circuit
- Adapter

Package

SZ-10



(1) Cathode
(2) Anode

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	$^\circ\text{C/W}$

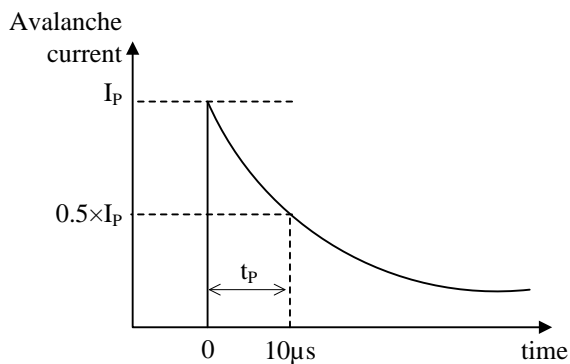


Figure 1. Definition of Pulse Width, t_p

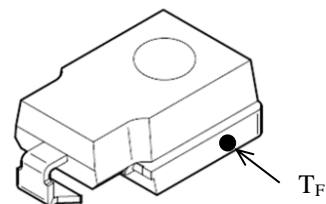


Figure 2. Frame Temperature Measurement Point

⁽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

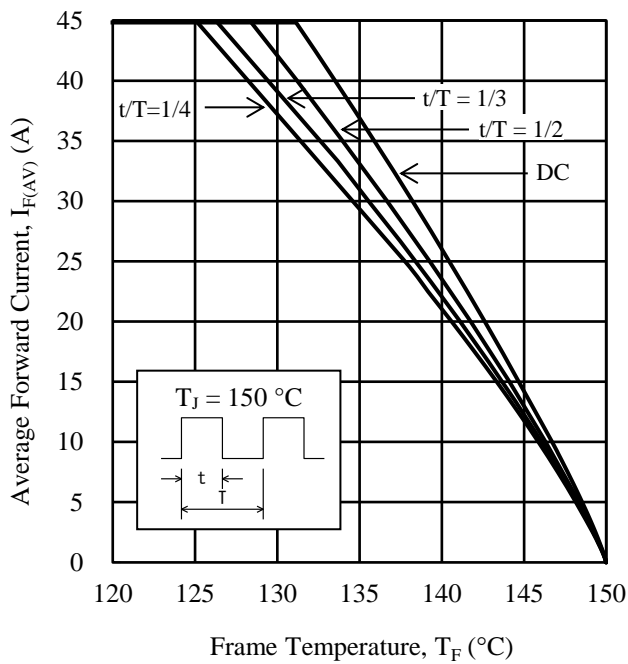


Figure 3. Typical Characteristics: $I_{F(AV)}$ vs. T_F
 ($V_R = 0\text{ V}$, $R_{th(J-F)} = 0.65\text{ °C/W}$)

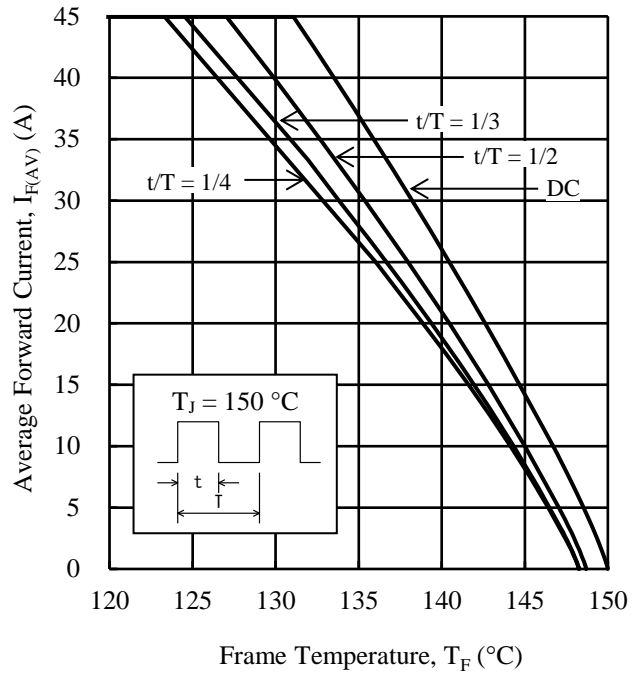


Figure 4. Typical Characteristics: $I_{F(AV)}$ vs. T_F
 ($V_R = 80\text{ V}$, $R_{th(J-F)} = 0.65\text{ °C/W}$)

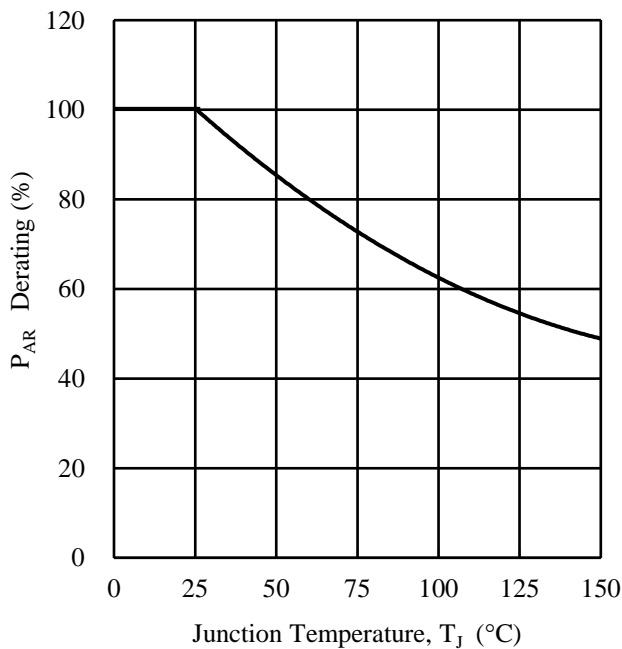


Figure 5. Typical Characteristics: P_{AR} vs. T_J ($t_p = 10\text{ }\mu\text{s}$)

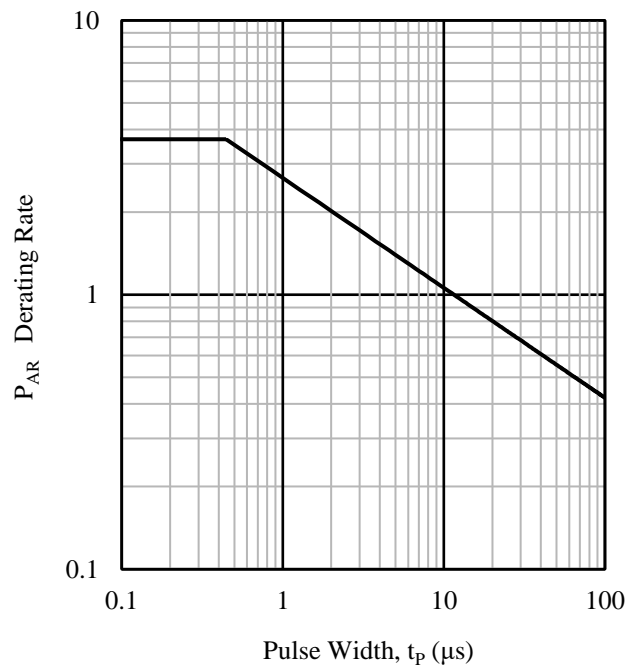


Figure 6. Typical Characteristics: P_{AR} vs. t_p
 ($T_J = 25\text{ °C}$)

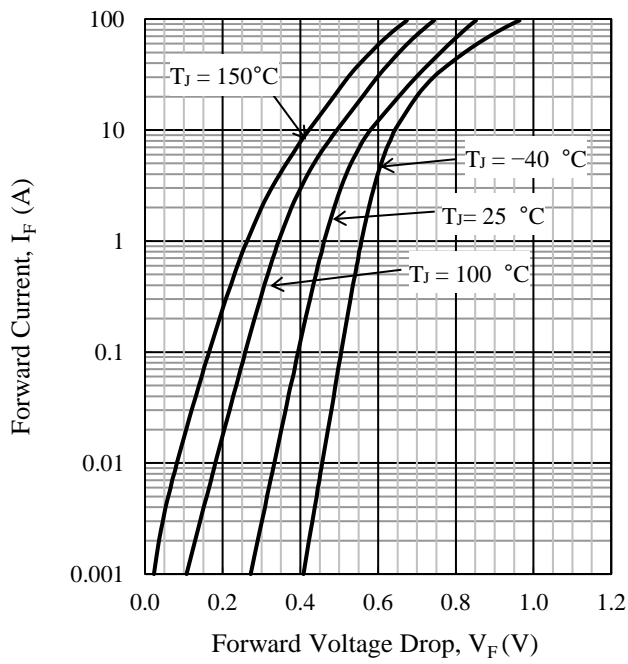


Figure 7. Typical Characteristics: I_F vs. V_F

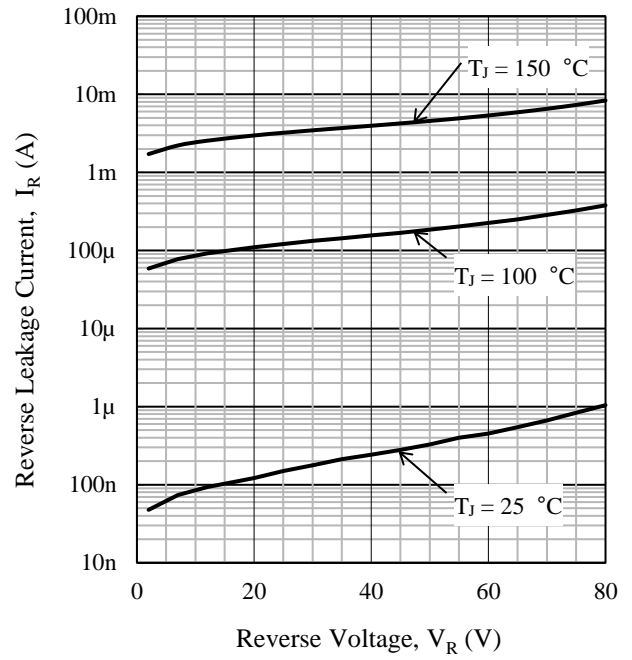
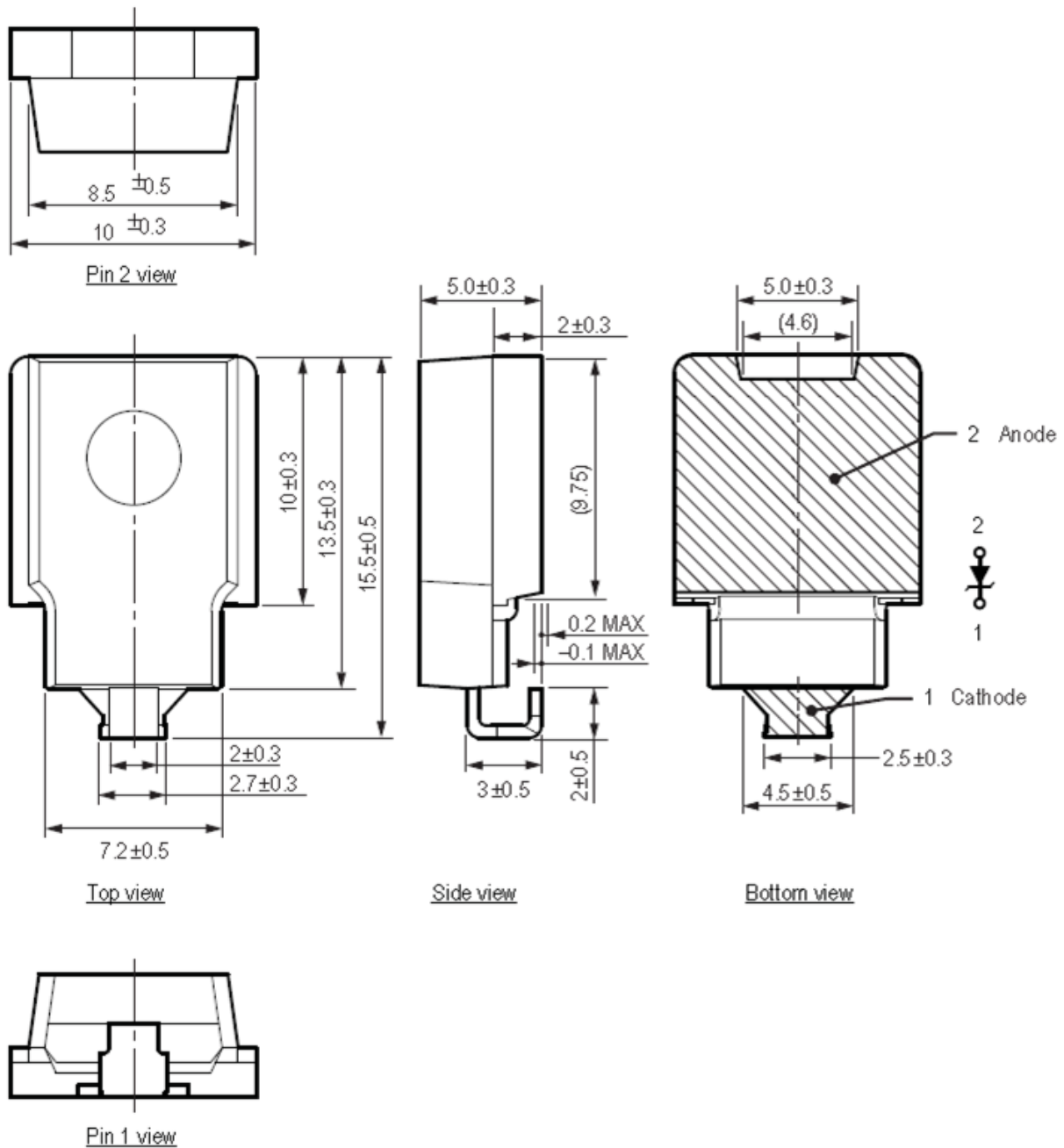


Figure 8. Typical Characteristics: I_R vs. V_R

SZ-10EF

Physical Dimensions

• SZ-10 Package

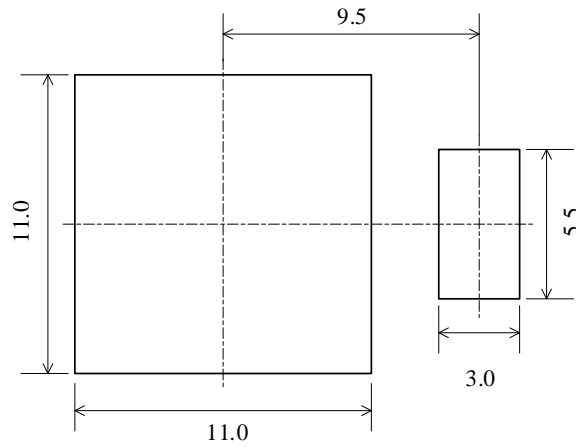


NOTES:

- Dimensions in millimeters
- Bare lead frame: Pb-free (RoHS compliant)
- When soldering the products, it is required 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

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• SZ-10 Land Pattern Example



NOTE:

- Dimensions in millimeters

Marking Diagram

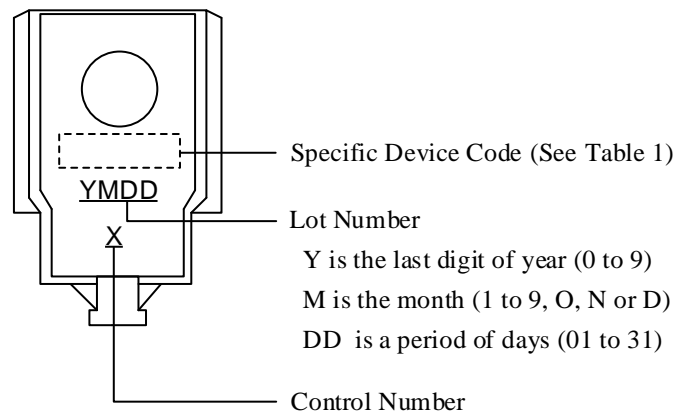


Table 1. Specific Device Code

Specific Device Code	Part Number
EF48	SZ-10EF

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DSGN-AEZ-16003