

**$V_{RM} = 150\text{ V}$ ,  $I_{F(AV)} = 45\text{ A}$**   
**Schottky Diode**  
**SZ-E10ET415**

**Description**

The SZ-E10ET415 is a 150 V, 45 A Schottky diode for automotive applications. The product achieves characteristics such as low leakage current and low forward voltage drop, thus providing a high-efficient rectification circuit. Its low thermal resistance package has excellent performance in heat dissipation.

**Features**

- $V_{RM}$ ----- 150 V
- $I_{F(AV)}$ ----- 45 A
- $V_F$  ( $I_F = 45\text{ A}$ )----- 0.98 V (typ.)
- $H \cdot I_R$  ( $T_J = 150\text{ }^\circ\text{C}$ )----- 35 mA (max.)
- Avalanche Power----- 2.5 kW
- Bare Lead Frame: Pb-free (RoHS Compliant)
- Flammability: Equivalent to UL94V-0
- Suitable for High Reliability and Automotive Requirements
- Anode Heatsink Package

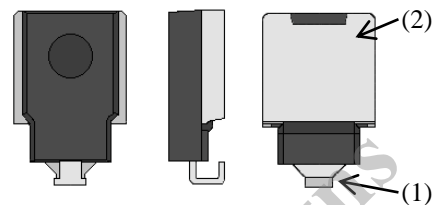
**Applications**

High speed switching applications such as:

- DC/DC Converter
- Adapter
- Secondary Rectifier Circuit

**Package**

SZ-E10



Not to scale

Not Recommended for New Designs

## SZ-E10ET415

### Absolute Maximum Ratings

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

Parameter	Symbol	Conditions	Rating	Unit
Repetitive Peak Reverse Voltage	$V_{RM}$		150	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
Avalanche Power <sup>(1)</sup>	$P_A$	$T_J = 150\text{ }^\circ\text{C}$ ; $t_p = 0.5\text{ }\mu\text{s}$ (see Figure 1), 1 shot	2.5	kW
Junction Temperature	$T_J$		-55 to 150	$^\circ\text{C}$
Storage Temperature	$T_{STG}$		-55 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	$V_F$	$I_F = 45\text{ A}$	—	0.98	1.10	V
Reverse Leakage Current	$I_R$	$V_R = V_{RM}$	—	3	30	$\mu\text{A}$
Reverse Leakage Current under High Temperature	$H \cdot I_R$	$V_R = V_{RM}$ , $T_J = 150\text{ }^\circ\text{C}$	—	20	35	mA
Thermal Resistance <sup>(2)</sup>	$R_{th(J-L)}$		—	0.35	0.55	$^\circ\text{C/W}$

### Mechanical Characteristics

Parameter	Conditions	Min.	Typ.	Max.	Unit
Package Weight		—	2.6	—	g

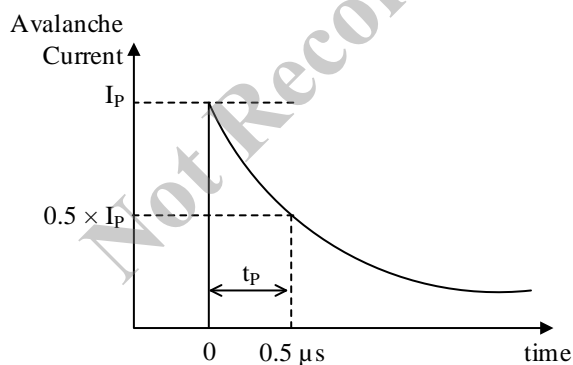


Figure 1. Definition of Pulse Width,  $t_p$

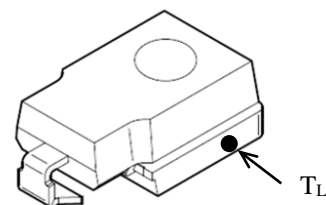


Figure 2. Lead Temperature Measurement Point

<sup>(1)</sup> Allowed to be applied to the device up to 2 million times.

<sup>(2)</sup> Refers to thermal resistance between junction and lead with infinite heatsink. Lead temperature is measured at anode lead (see Figure 2).

Derating Curves

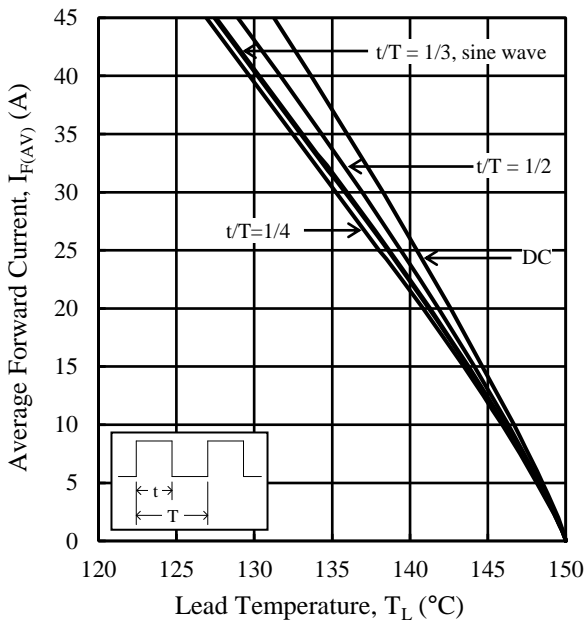


Figure 3.  $I_{F(AV)}$  vs.  $T_L$   
 ( $T_J = 150\text{ }^\circ\text{C}$ ,  $V_R = 0\text{ V}$ ,  $R_{th(J-L)} = 0.55\text{ }^\circ\text{C/W}$ )

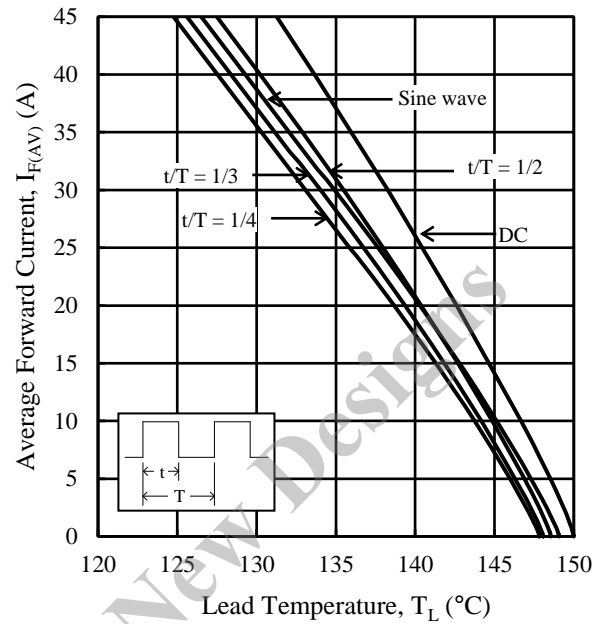


Figure 4.  $I_{F(AV)}$  vs.  $T_L$   
 ( $T_J = 150\text{ }^\circ\text{C}$ ,  $V_R = 150\text{ V}$ ,  $R_{th(J-L)} = 0.55\text{ }^\circ\text{C/W}$ )

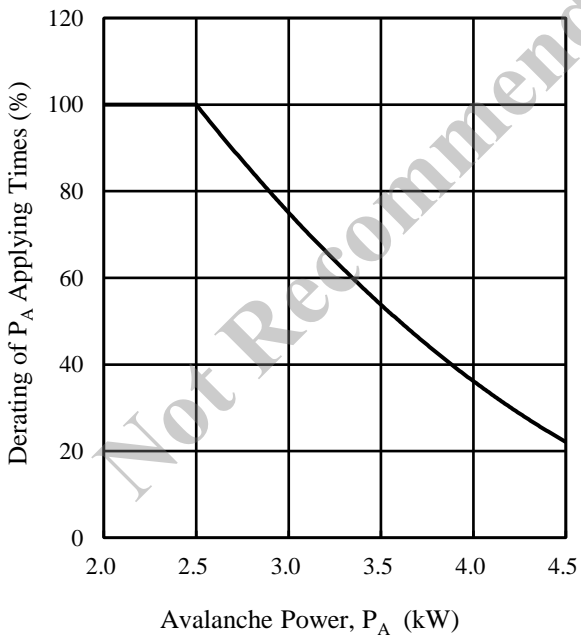


Figure 5. Derating of  $P_A$  Applying Times vs.  $P_A$   
 ( $t_p = 0.5\text{ }\mu\text{s}$ )

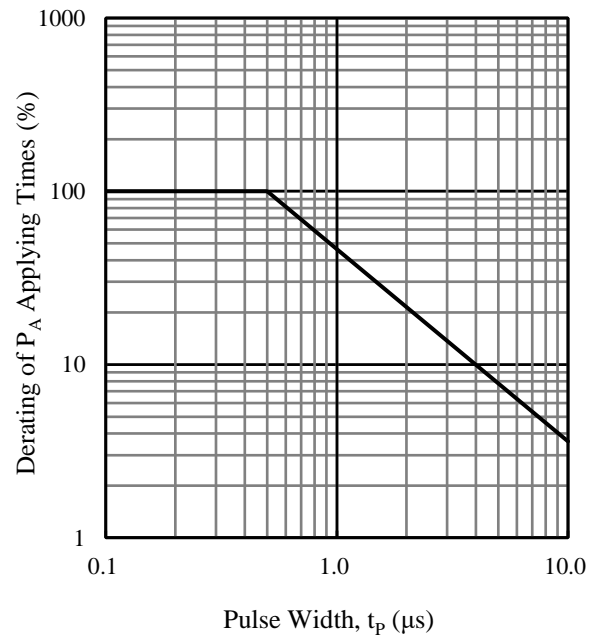


Figure 6. Derating of  $P_A$  Applying Times vs.  $t_p^{(3)}$   
 ( $T_J = 150\text{ }^\circ\text{C}$ )

<sup>(3)</sup> See Figure 1.

Characteristic Curves

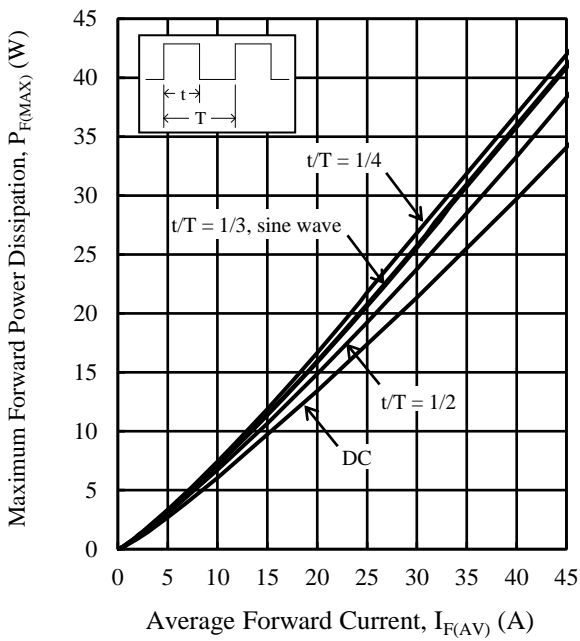


Figure 7.  $P_{F(MAX)}$  vs.  $I_{F(AV)}$  ( $T_J = 150\text{ }^\circ\text{C}$ )

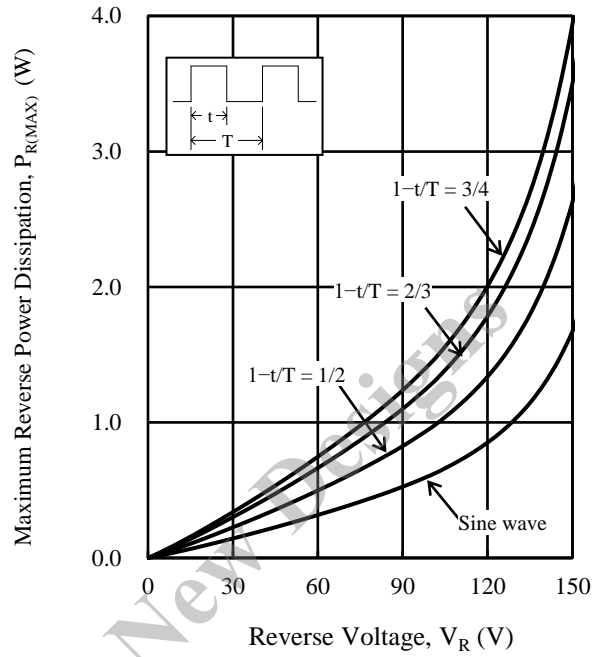


Figure 8.  $P_{R(MAX)}$  vs.  $V_R$  ( $T_J = 150\text{ }^\circ\text{C}$ )

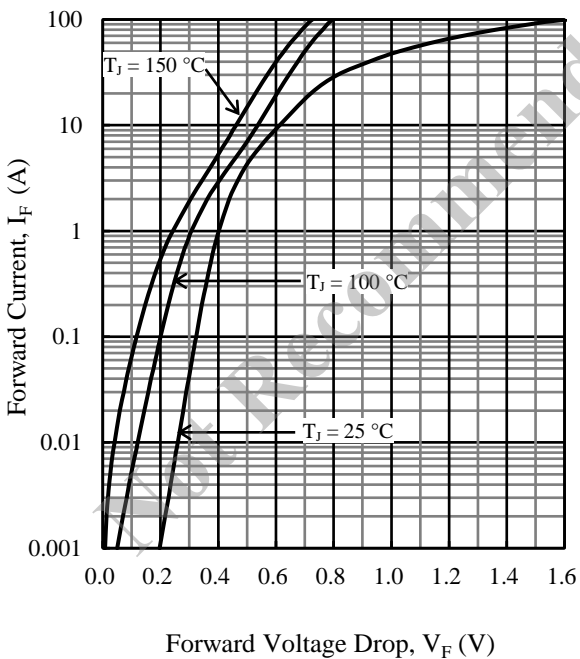


Figure 9. Typical Characteristics:  $I_F$  vs.  $V_F$

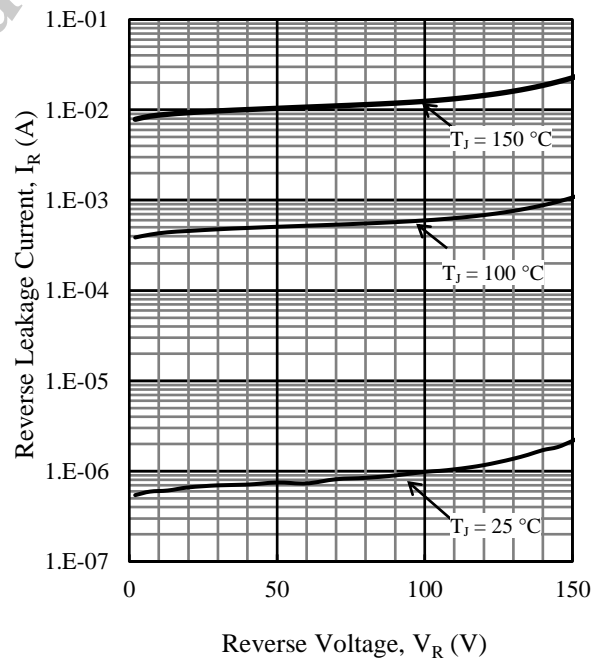


Figure 10. Typical Characteristics:  $I_R$  vs.  $V_R$

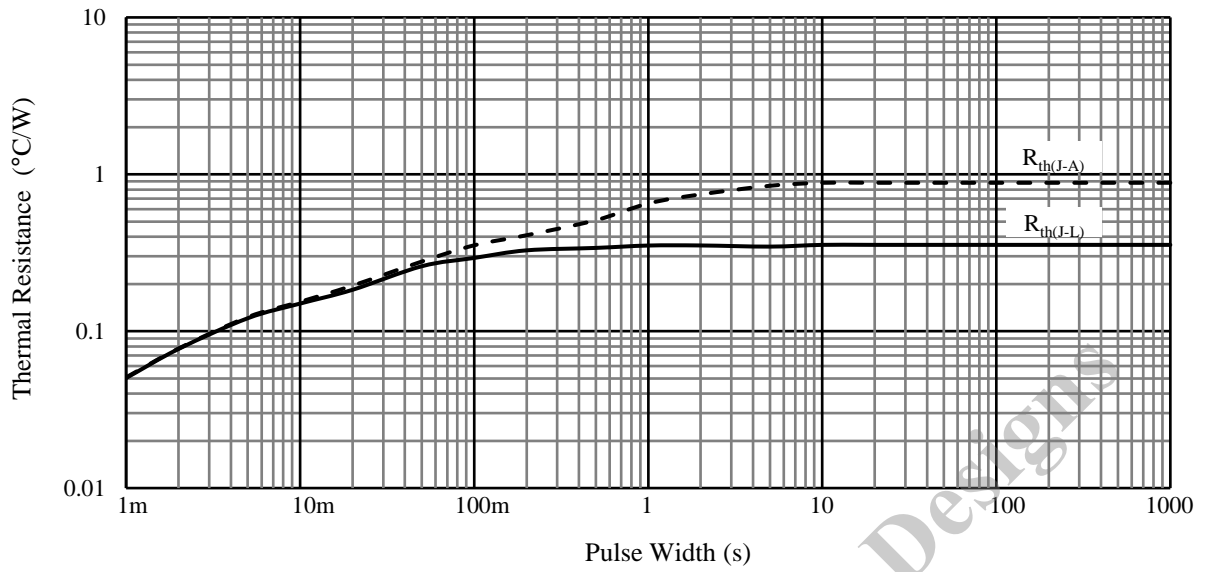


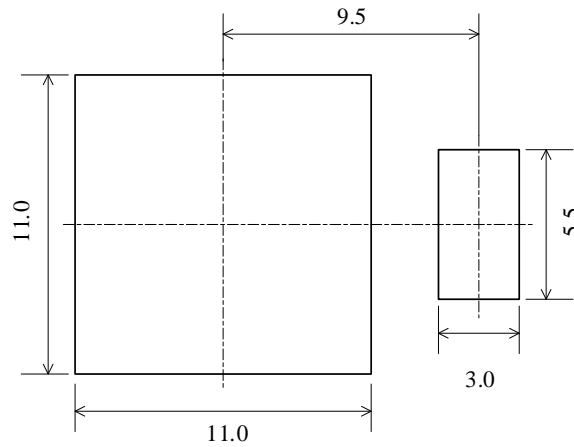
Figure 11. Typical Transient Thermal Resistance Characteristics

Not Recommended for New Designs



# SZ-E10ET415

## • SZ-E10 Land Pattern Example



### NOTE:

- Dimensions in millimeters

### Marking Diagram

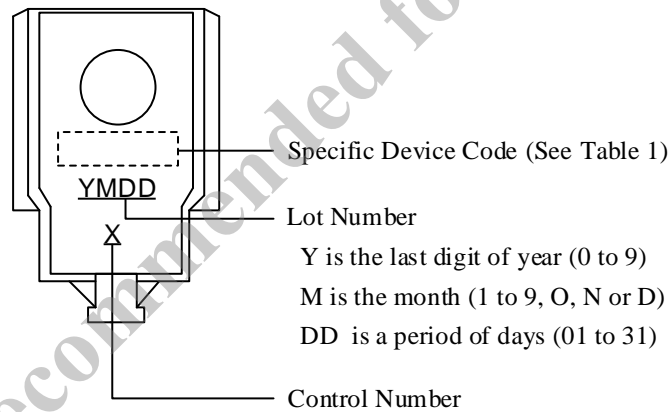


Table 1. Specific Device Code

Specific Device Code	Part Number
ET415	SZ-E10ET415

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