V_{RM} = 150 V, $I_{F(AV)}$ = 15 A
Schottky Diode

SPET-21515

Data Sheet

Description

The SPET-21515 is a 150 V, 15 A Schottky diode with a trench structure, allowing improvements in V_F and I_R characteristics. These characteristic features contribute to improving power supply efficiency and to enabling high-frequency systems.

Features

- V_{RM} ---------- 150 V
- $I_{F(AV)}$---------- 15 A
- V_F (I_F = 6.5 A) ---------- 0.90 V typ.
- Bare Lead Frame: Pb-free (RoHS Compliant)
- Flammability: Equivalent to UL94V-0

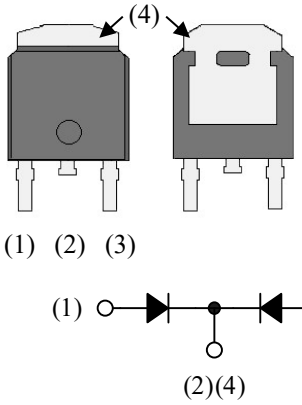
Applications

High speed switching applications as follows:

- DC-DC Converter
- Adapter

Package

TO252-2L



(1) Anode
(2) Cathode
(3) Anode
(4) Cathode

Not to scale

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Absolute Maximum Ratings

Unless otherwise specified, T_A = 25 °C.

Parameter	Symbol	Conditions	Rating	Unit
Nonrepetitive Peak Reverse Voltage(1)	V_{RSM}		150	V
Repetitive Peak Reverse Voltage(1)	V_{RM}		150	V
Average Forward Current	$I_{F(AV)}$	See Figure 3 and Figure 4	15	A
Surge Forward Current(1)	I_{FSM}	Half cycle sine wave, positive side, 10 ms, 1 shot	90	A
I^2t Limiting Value(1)	I^2t	1 ms ≤ t ≤ 10 ms	40	A^2s
Junction Temperature	T_J		−40 to 150	°C
Storage Temperature	T_{STG}		−40 to 150	°C

Electrical Characteristics

Unless otherwise specified, T_A = 25 °C.

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Forward Voltage Drop(1)	V_F	I_F = 6.5 A	—	0.90	0.98	V
Reverse Leakage Current(1)	I_R	$V_R = V_{RM}$	—	—	70	μA
Reverse Leakage Current under High Temperature(1)	H·I_R	$V_R = V_{RM}$, T_J = 150 °C	—	—	35	mA
Thermal Resistance(2)	$R_{th(J-C)}$	(3)	—	—	3.5	°C/W

Mechanical Characteristics

Parameter	Conditions	Min.	Typ.	Max.	Unit
Package Weight		—	0.32	—	g

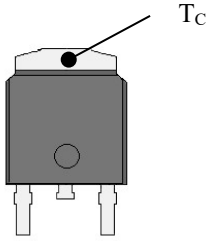


Figure 1. Case Temperature Measurement Point

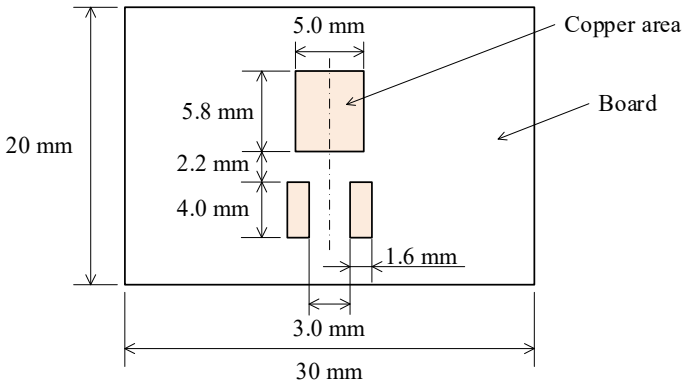


Figure 2 Glass-epoxy Board

(1) Specifies a value per chip; the SPET-21515 consists of two chips.
(2) $R_{th\ (J-C)}$ is thermal resistance between junction and the case. Case Temperature, T_C, is measured at the point defined in Figure 1.
(3) The device is mounted on the glass-epoxy board (PCB: 42 mm × 32 mm in size, 1 mm in thickness, copper area: see Figure 2).

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Derating Curves

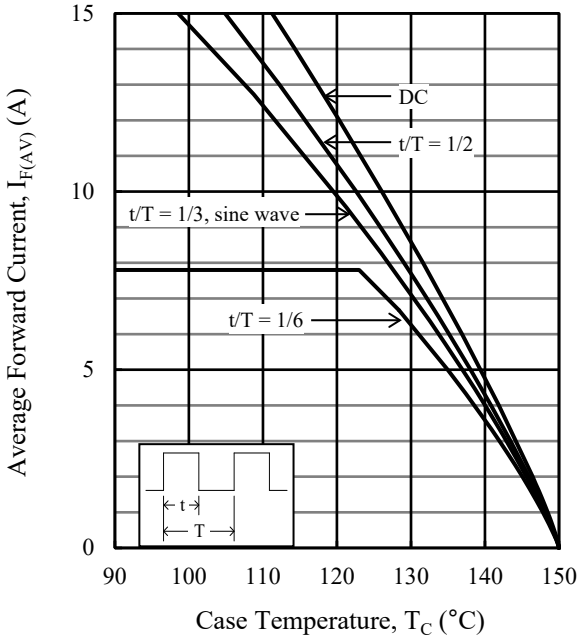


Figure 3. $I_{F(AV)}$ vs. T_C (T_J = 150 °C, V_R = 0 V)

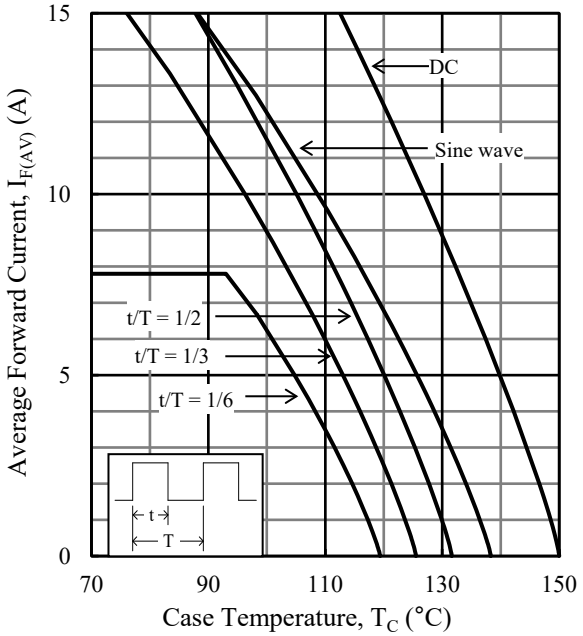


Figure 4. $I_{F(AV)}$ vs. T_C (T_J = 150 °C, V_R = 150 V)

Characteristic Curves

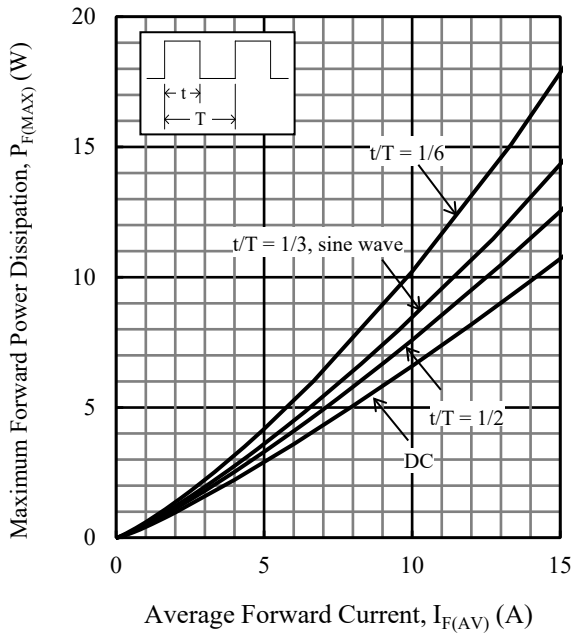


Figure 5. $P_{F(MAX)}$ vs. $I_{F(AV)}$ (T_J = 150 °C)

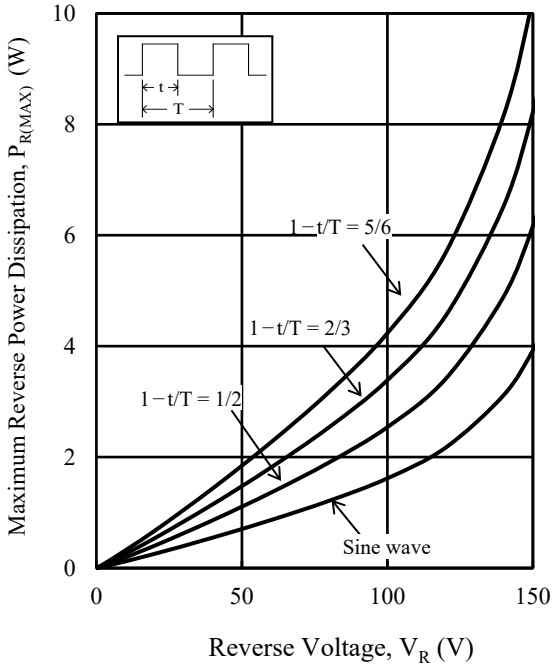


Figure 6. $P_{R(MAX)}$ vs. V_R (T_J = 150 °C)

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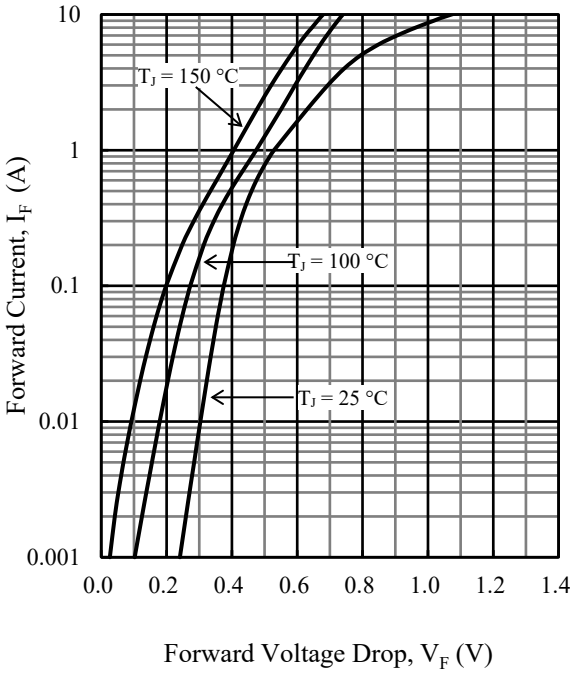


Figure 7. Typical Characteristics: I_F vs. V_F

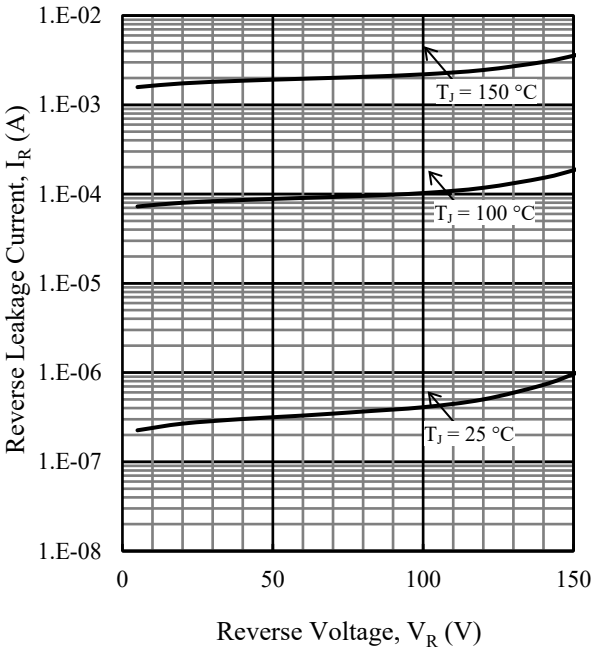


Figure 8. Typical Characteristics: I_R vs. V_R

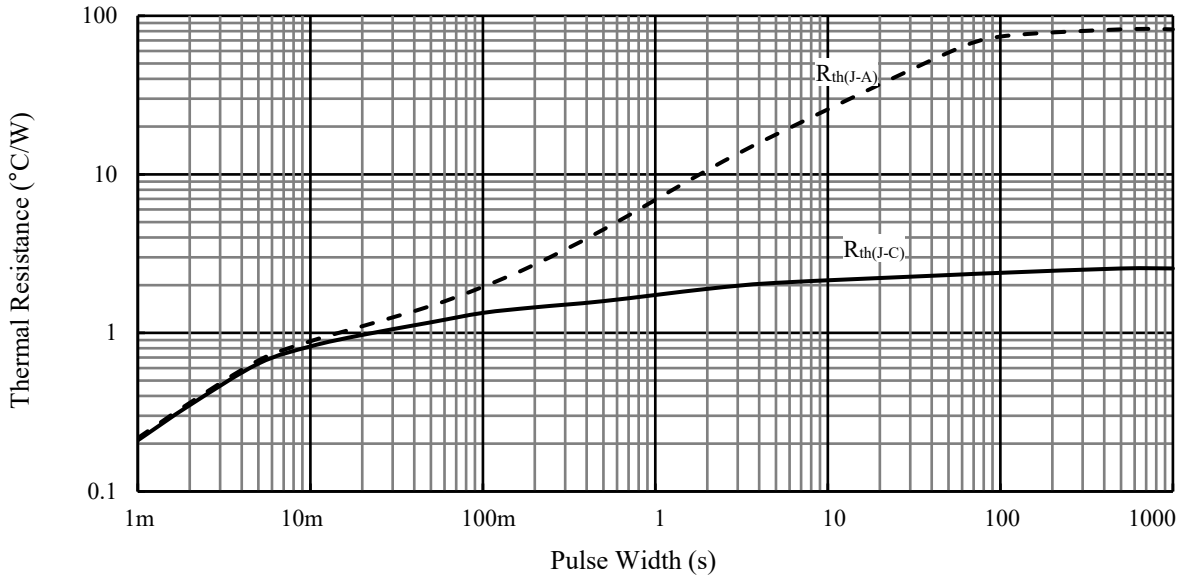
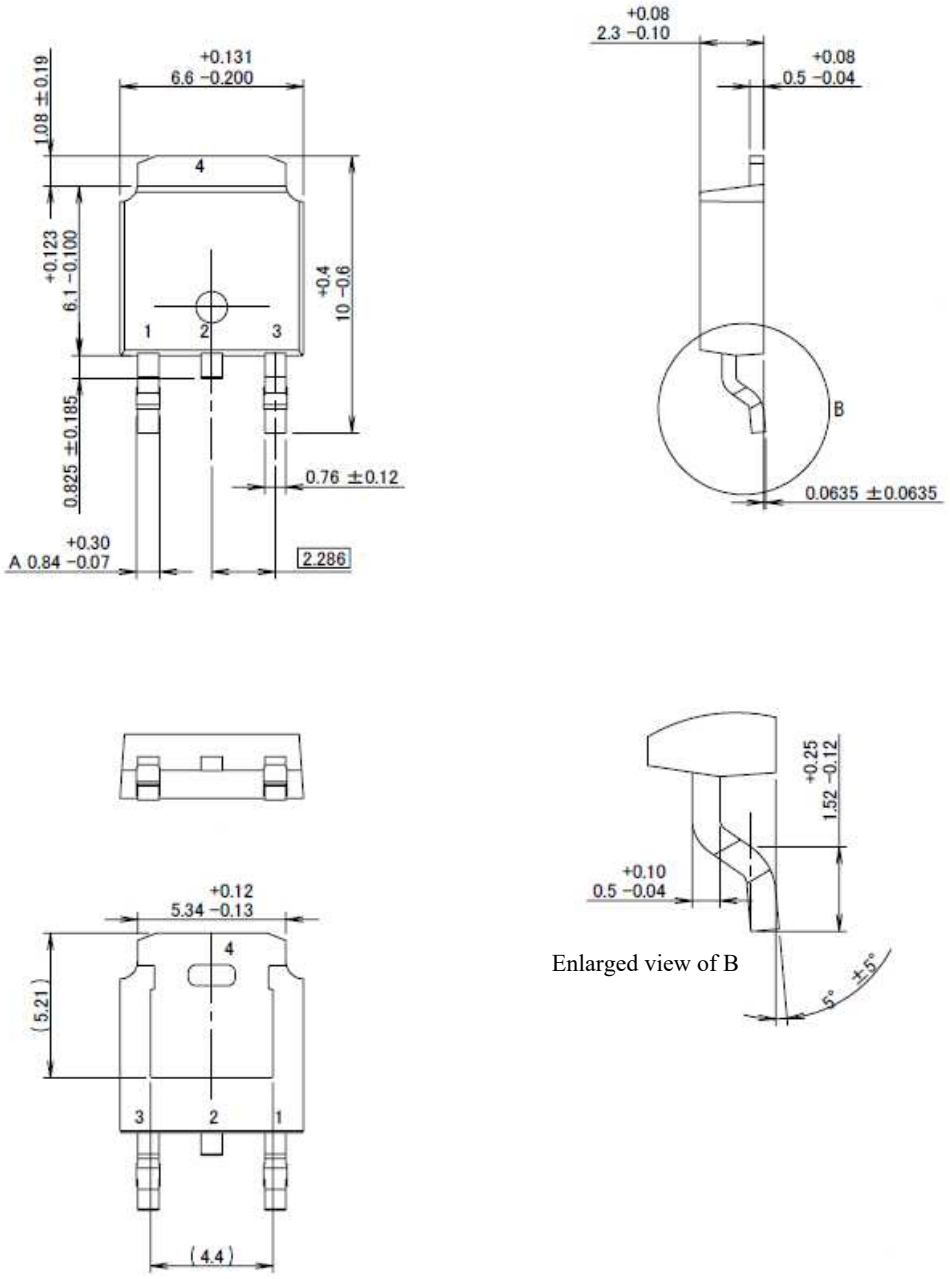


Figure 9. Typical Transient Thermal Resistance Characteristics

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Physical Dimensions

● **TO252-2L Package**

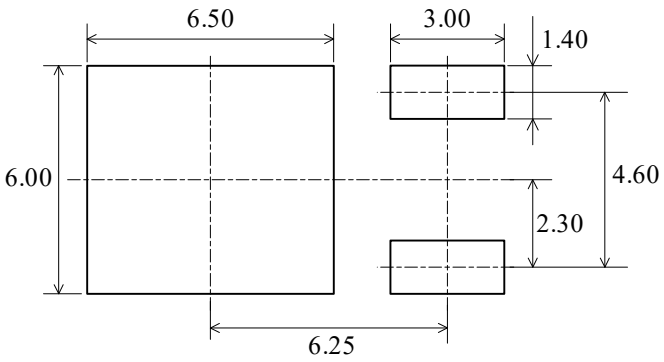


NOTES:

- Dimensions in millimeters
- All the dimensions exclude mold flashes, protrusions, and gate burrs.
- Bare lead frame: Pb-free (RoHS compliant)
- MSL 1 (Moisture Sensitivity Level 1)
- When soldering the products, it is required to minimize the working time within the following limits:
  Reflow:
  Preheat: 150 to 200 °C / 60 s to 120 s
  Solder heating: 255 °C / 30 s, 3 times (260 °C peak)
  Soldering Iron: 350 °C / 3.5 s, 1 time

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● **TO252-2L Land Pattern Example**



Unit: mm

Marking Diagram

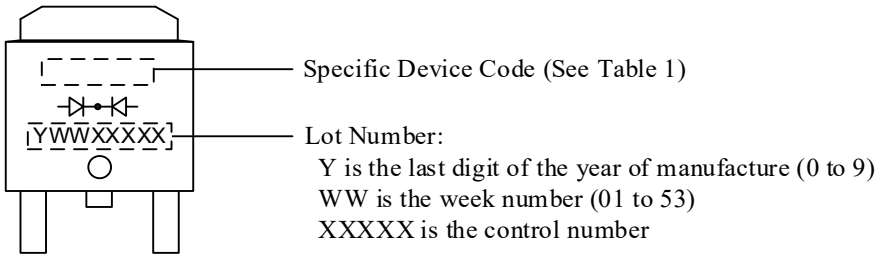


Table 1. Specific Device Code

Specific Device Code	Part Number
ET1515	SPET-21515

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