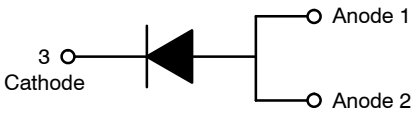
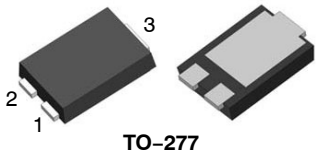
Ultra-Low VF Schottky Rectifier, 10 A, 120 V

FSV10120V



Schottky Rectifier



TO−277
CASE 340BQ

Features

- Ultra−Low Forward Voltage Drop
- Low Thermal Resistance
- Very Low Profile: Typical Height of 1.1 mm
- Trench Schottky Technology
- Green Molding Compound as per IEC61249 Standard
- These Devices are Pb−Free, Halogen Free and are RoHS Compliant

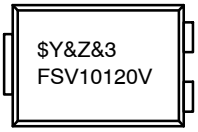
Specifications

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{RRM}	Peak Repetitive Reverse Voltage	120	V
V_{RWM}	Working Peak Reverse Voltage	120	V
V_{RMS}	RMS Reverse Voltage	85	V
V_R	DC Blocking Voltage	120	V
$I_{F(AV)}$	Average Rectified Peak Forward Surge Current	10	A
I_{FSM}	Non−Repetitive Peak Forward Surge Current	180	A
T_J	Operating Junction Temperature Range	−55 to +150	°C
T_{STG}	Storage Temperature Range	−55 to +150	°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

MARKING DIAGRAM



$Y = **onsemi** Logo
&Z = Assembly Plant Code
&3 = Data Code (Year & Week)
FSV10120V = Specific Device Code

ORDERING INFORMATION

See detailed ordering and shipping information on page 2 of this data sheet.

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THERMAL CHARACTERISTICS (T_A = 25°C unless otherwise noted) (Note 1)

Symbol	Parameter	Minimum Land Pattern	Maximum Land Pattern	Unit
$R_{\theta JA}$	Junction−to−Ambient Thermal Resistance	100	40	°C/W
Ψ_{JL}	Junction−to−Lead Thermal Characteristics, Thermocouple Soldered to Anode	15	12	°C/W
	Junction−to−Lead Thermal Characteristics, Thermocouple Soldered to Cathode	6	5	

1. The thermal resistances ($R_{\theta JA}$ & Ψ_{JL}) are characterized with device mounted on the following FR4 printed circuit boards, as shown in Figure 1 and Figure 2. PCB size: 76.2 x 114.3 mm. Minimum land pattern size: 4.9 x 4.8 mm (big pattern, x1), 1.4 x 1.52 mm (small pattern, x2). Maximum land pattern size: 30 x 30 mm (pattern, x2). Force line trace size = 55 mils, sense line trace size = 4 mils.

Figure 1. Minimum Land Pattern of 2 oz Copper

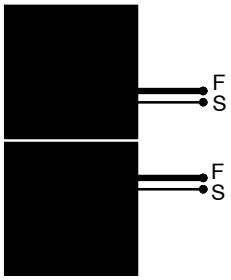

Figure 2. Maximum Land Pattern of 2 oz Copper

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
BV_R	Breakdown Voltage	I_R = 0.5 mA	120	−	−	V
V_F	Forward Voltage Drop	I_F = 5 A	−	0.667	−	V
		I_F = 5 A, T_A = 125°C	−	0.530	−	
		I_F = 10 A	−	0.748	0.800	
		I_F = 10 A, T_A = 125°C	−	0.602	0.620	
I_R	Reverse Current	V_R = 80 V	−	0.0016	−	mA
		V_R = 80 V, T_A = 125°C	−	2.703	−	
		V_R = 120 V	−	0.004	0.025	
		V_R = 120 V, T_A = 125°C	−	6.791	10	
C_J	Junction Capacitance	V_R = 4 V, f = 1 MHz	−	608	−	pF
T_{rr}	Reverse Recovery Time	I_F = 0.5 A, I_R = 1 A, I_{rr} = 0.25 A	−	16.70	−	ns

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

ORDERING INFORMATION

Part Number	Top Mark	Package	Shipping†
FSV10120V	FSV10120V	TO−277 3L (Pb−Free/Halogen Free)	5000 / Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

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TYPICAL PERFORMANCE CHARACTERISTICS

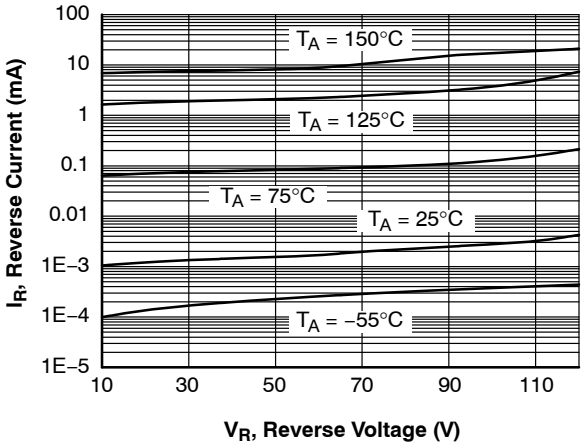

Figure 3. Typical Reverse Characteristics

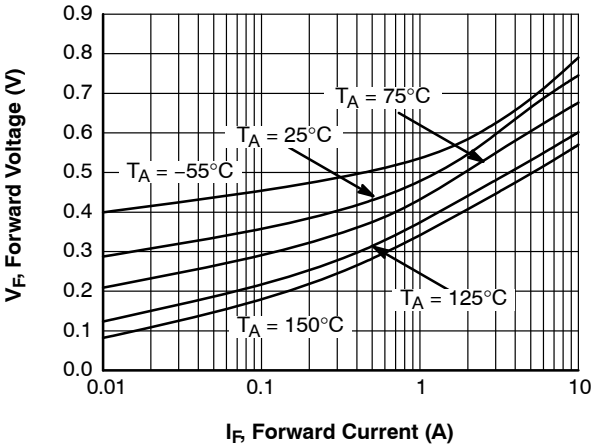

Figure 4. Typical Forward Characteristics

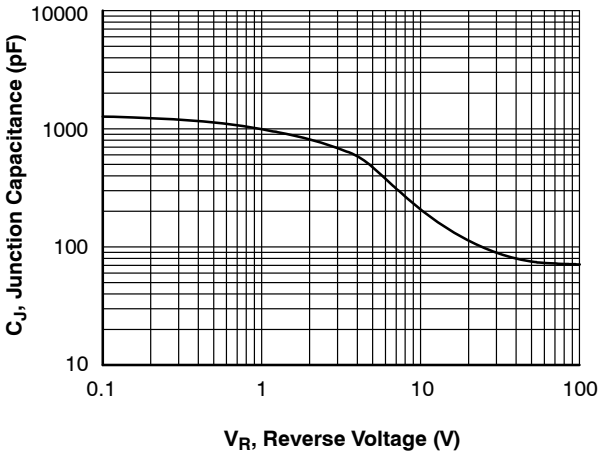

Figure 5. Typical Junction Capacitance

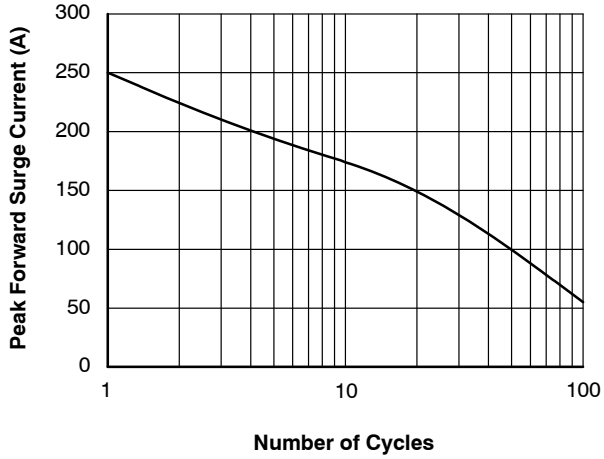

Figure 6. Maximum Non−Repetitive Peak Forward Surge Current

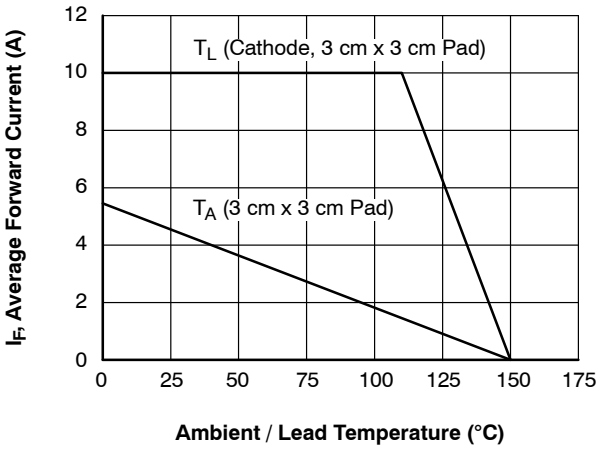

Figure 7. Forward Current Derating Curve

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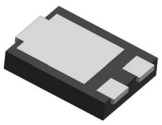

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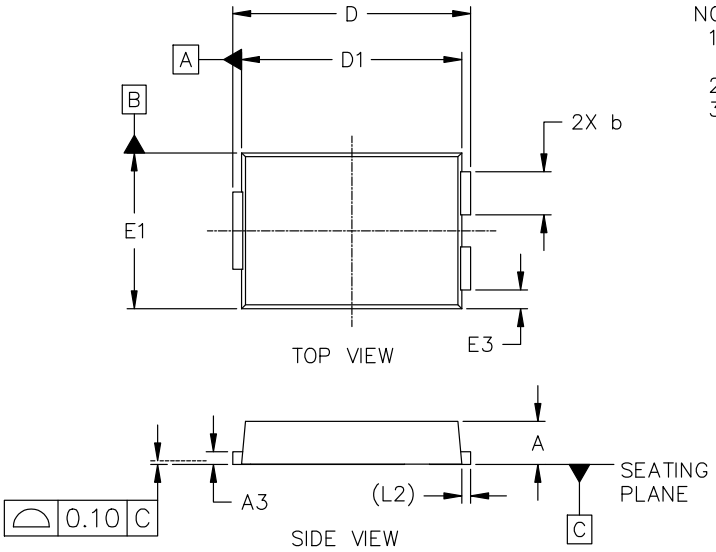
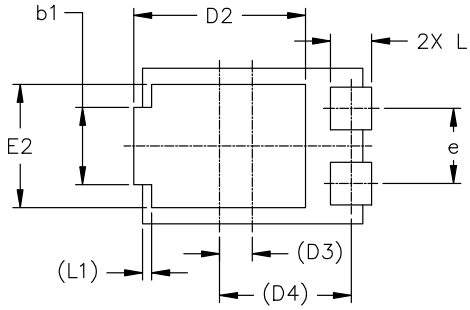
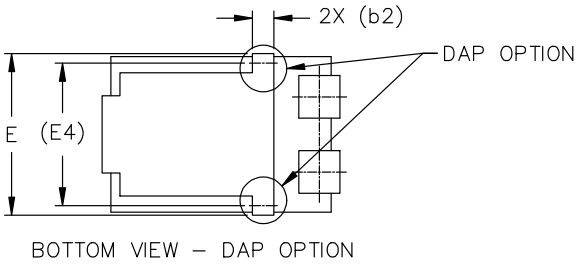
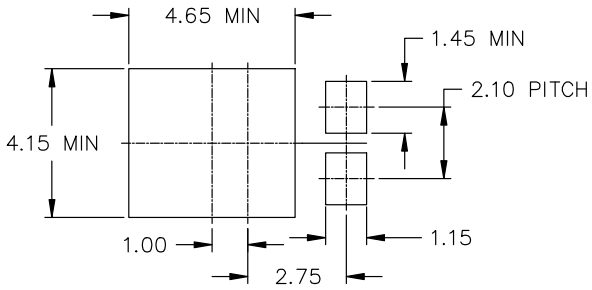






NOTES:
1. DIMENSIONING AND TOLERANCING AS PER ASME Y14.5M, 2018.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. DIMENSIONS D1 AND E1 DO NOT INCLUDE MOLD FLASH, MOLD FLASH SHALL NOT EXCEED 0.13 mm PER SIDE.

MILLIMETERS			
DIM	MIN	NOM	MAX
A	1.00	1.10	1.20
A3	0.23	0.32	0.40
b	1.10	1.25	1.40
b1	1.95	2.10	2.25
b2	0.60 REF		
D	6.35	6.50	6.65
D1	5.67	5.91	6.15
D2	4.23	4.57	4.90
D3	0.913 REF		
D4	3.680 REF		
E	−−−	−−−	4.75
E1	4.25	4.44	4.63
E2	3.25	3.48	3.70
E3	0.43	0.53	0.63
E4	3.680 REF		
e	2.00	2.10	2.20
L	0.90	1.08	1.25
L1	0.25 REF		
L2	0.35 REF		



RECOMMENDED MOUNTING FOOTPRINT

*For additional information on our Pb−Free strategy and soldering details, please download the onsemi Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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