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OM SENI

ES1DAF, ES1JAF
Surface Mount Ultrafast Rectifier

Features

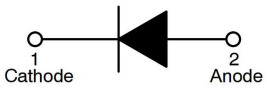
- Fast Switching Speed – Maximum T_{rr} 35 ns
- Ultra Thin Profile – Maximum Height of 1.0 mm
- Glass Passivated Junction
- UL Flammability 94V–0 Classification
- MSL 1
- Green Mold Compound
- These Devices are Pb–Free, Halogen Free Free and are RoHS Compliant

Specifications

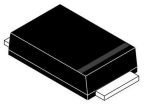
ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)

Symbol	Parameter	Value		Unit
		ES1DAF	ES1JAF	
V_{RRM}	Recurrent Peak Reverse Voltage	200	600	V
V_{RMS}	RMS Voltage	140	420	V
V_R	DC Blocking Voltage	200	600	V
$I_{F(AV)}$	Average Forward Current	1		A
I_{FSM}	Peak Forward Surge Current: 8.3 ms Single Half Sine–Wave Superimposed on Rated Load	30		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.



Ultrafast Rectifier



DO–214AD
(SMAF)
CASE 403AD

MARKING DIAGRAMS



Band Indicates Cathode

$Y = OM SENI
& = Assembly Plant Code
&3 = Data Code (Year & Week)
ES1DAF = Specific Device Code



Band Indicates Cathode

$Y = OM SENI
&Z = Assembly Plant Code
&3 = Data Code (Year & Week)
ES1JAF = Specific Device Code

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

Symbol	Characteristic	Value	Unit
Ψ_{JL}	Typical Thermal Characteristics, Junction−to−Lead (Note 1)	24	°C/W
$R_{\theta JA}$	Typical Thermal Resistance, Junction−to−Ambient (Note 2)	150	°C/W

1. Mounted on an FR4 PCB, single−sided copper, with 48 cm^2 copper pad area.
2. Mounted on an FR4 PCB, single−sided copper, mini pad.

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

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
V_F	Forward Voltage	I_F = 1 A	ES1DAF	−	−	0.95	V
			ES1JAF	−	−	1.70	
I_R	Reverse Current	$V_R = V_{DC}$		−	−	1	μA
t_{rr}	Reverse Recovery Time	I_F = 0.5 A, I_R = 1 A, I_{rr} = 0.25 A		−	−	34	ns
C_J	Junction Capacitance	V_R = 4 V, f = 1 MHz		−	15	−	pF

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†
ES1DAF	ES1DAF	DO−214AD (SMAF) (Pb−Free/Halogen Free)	3000 / Tape & Reel
ES1JAF	ES1JAF	DO−214AD (SMAF) (Pb−Free/Halogen Free)	3000 / Tape & Reel

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TYPICAL PERFORMANCE CHARACTERISTICS

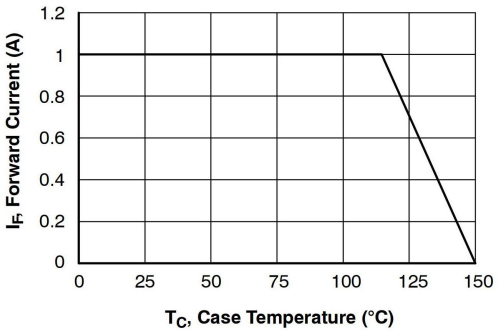


Figure 1. Forward Current Derating Curve

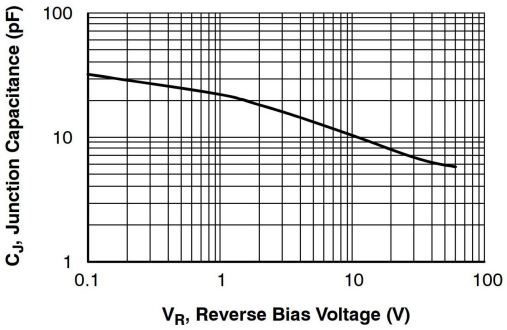


Figure 2. Typical Junction Capacitance

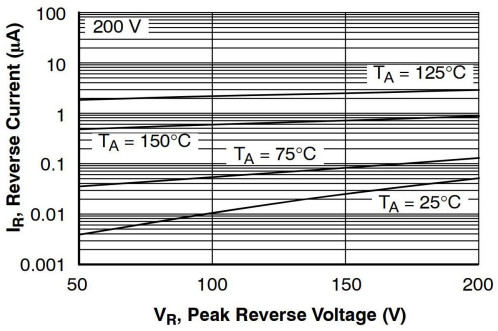


Figure 3. Typical Reverse Characteristics

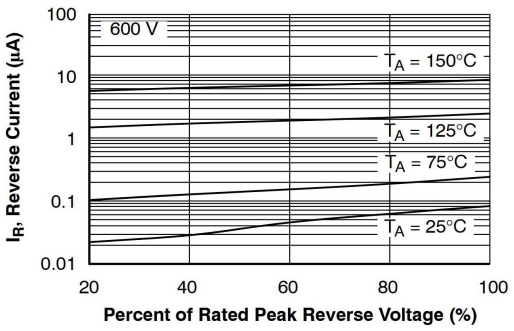


Figure 4. Typical Reverse Characteristics

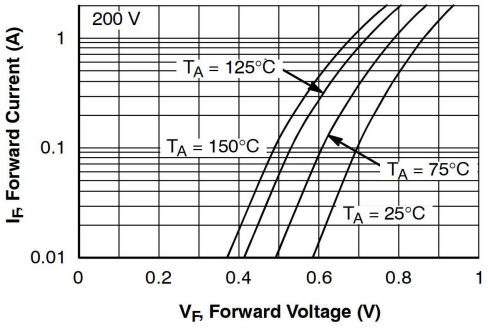


Figure 5. Typical Forward Characteristics

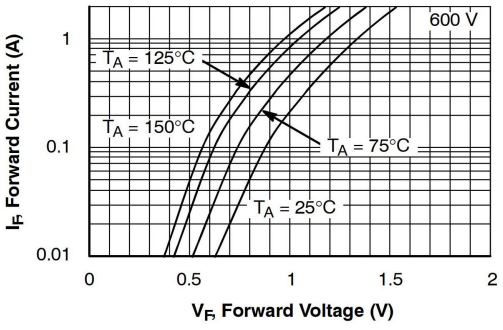


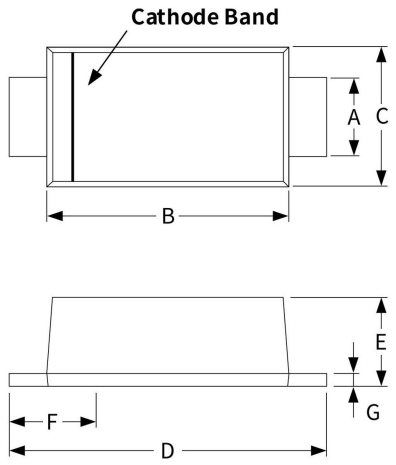
Figure 6. Typical Forward Characteristics

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Ordering Information

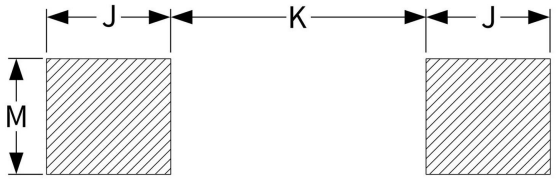
PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SMAF	R1	0.034	3000	30000	240000	7''

Package Outline Dimensions (SMAF)



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	1.30	1.60	0.051	0.063
B	3.30	3.70	0.129	0.145
C	2.40	2.70	0.094	0.105
D	4.40	4.90	0.172	0.191
E	0.90	1.20	0.035	0.047
F	0.80	1.20	0.031	0.047
G	0.12	0.20	0.005	0.008

Suggested Pad Layout



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
M	1.80	-	0.070	-
J	1.60	-	0.063	-
K	-	2.2	-	0.086