THE DATASHEET OF

RS1KFSHMWG

1A, 200V - 1000V Surface Mount Fast Recovery Rectifier

FEATURES

- Glass passivated junction chip
- Ideal for automated placement
- Low profile package
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

- High frequency rectification
- Freewheeling application
- Switching mode converters and inverters in computer,automotive and telecommunication

MECHANICAL DATA

- Case: SOD-128
- Molding compound meets UL 94V-0 flammability rating
- Part no. with suffix "H" means AEC-Q101 qualified
- Packing code with suffix "G" means green compound (halogen-free)
- Moisture sensitivity level: level 1, per J-STD-020
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: As marked
- Weight: 0.027 g (approximately)

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
$I_{F(AV)}$	1	A
V_{RRM}	200 - 1000	V
I_{FSM}	30	A
$T_{J\ MAX}$	150	°C
Package	SOD-128	
Configuration	Single die	

Pb-Free RoHS COMPLIANT HALOGEN FREE

SOD-128

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

PARAMETER	SYMBOL	RS1DFS	RS1GFS	RS1JFS	RS1KFS	RS1MFS	UNIT
Marking code on the device		RS1DFS	RS1GFS	RS1JFS	RS1KFS	RS1MFS	
Repetitive peak reverse voltage	V_{RRM}	200	400	600	800	1000	V
Reverse voltage, total rms value	$V_{R(RMS)}$	140	280	420	560	700	V
Forward current	$I_{F(AV)}$	1					A
Surge peak forward current, 8.3 ms single half sine-wave superimposed on rated load per diode	I_{FSM}	30					A
Junction temperature	T_J	- 55 to +150					°C
Storage temperature	T_{STG}	- 55 to +150					°C

THERMAL PERFORMANCE

PARAMETER	SYMBOL	LIMIT	UNIT
Junction-to-lead thermal resistance per diode	$R_{\Theta JL}$	29	°C/W
Junction-to-ambient thermal resistance per diode	$R_{\Theta JA}$	84	°C/W
Junction-to-case thermal resistance per diode	$R_{\Theta JC}$	30	°C/W

Thermal Performance Note: Units mounted on recommended PCB (5mm x 5mm Cu pad test board)

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

PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage per diode (1)		I_F = 0.5A, T_J = 25°C	V_F	0.94	1.10	V
		I_F = 1.0A, T_J = 25°C		1.01	1.30	
		I_F = 0.5A, T_J = 125°C		0.79	1.00	
		I_F = 1.0A, T_J = 125°C		0.88	1.20	
Reverse current @ rated V_R per diode (2)		T_J = 25°C	I_R	-	5	μA
		T_J = 125°C		-	50	μA
Junction capacitance		1 MHz, V_R=4.0V	C_J	7	-	pF
Reverse recovery time	RS1DFS RS1GFS	I_F=0.5A ,I_R=1.0A I_{RR}=0.25A	t_{rr}	-	150	ns
	RS1JFS			-	250	ns
	RS1KFS RS1MFS			-	500	ns

Notes:

1. Pulse test with PW=0.3 ms
2. Pulse test with PW=30 ms

ORDERING INFORMATION

PART NO.	PART NO. SUFFIX(*)	PACKING CODE	PACKING CODE SUFFIX	PACKAGE	PACKING
RS1xFS (Note 1, 2)	H	MW	G	SOD-128	3,500 / 7" Plastic reel
		MX		SOD-128	14,000 / 13" Plastic reel

Notes:

1. "xx" defines voltage from 200V (RS1DFS) to 1000V (RS1MFS)
2. Whole series with green compound (halogen-free)

*: Optional available

EXAMPLE P/N

EXAMPLE P/N	PART NO.	PART NO. SUFFIX	PACKING CODE	PACKING CODE SUFFIX	DESCRIPTION
RS1DFSHMWG	RS1DFS	H	MW	G	AEC-Q101 qualified Green compound

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

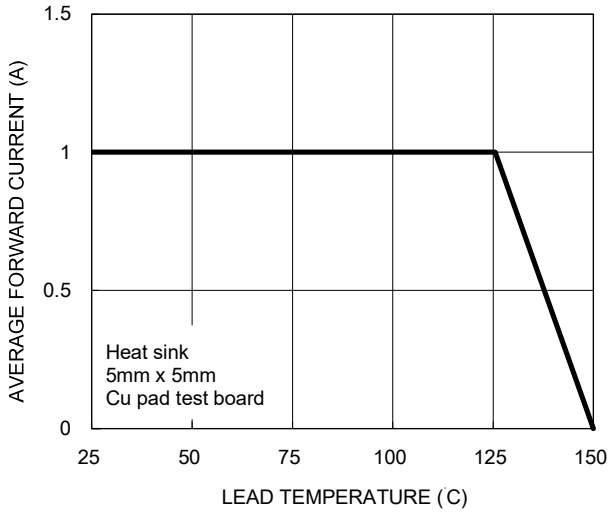


Fig.2 Typical Junction Capacitance

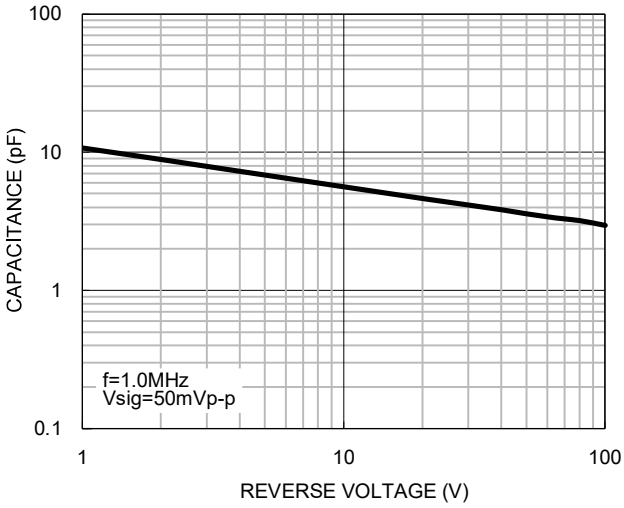


Fig.3 Typical Reverse Characteristics

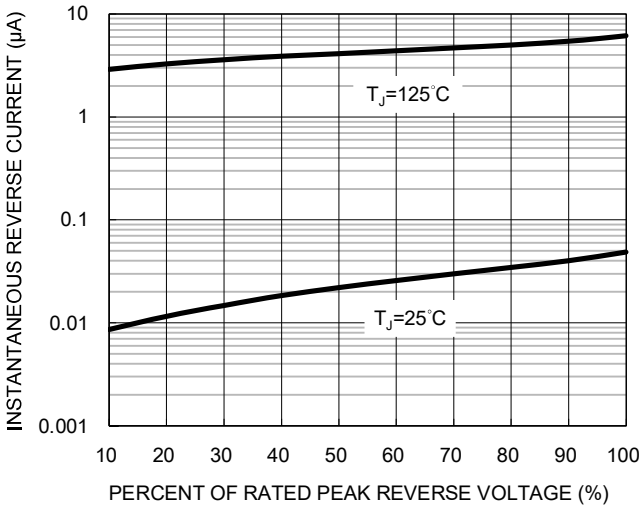
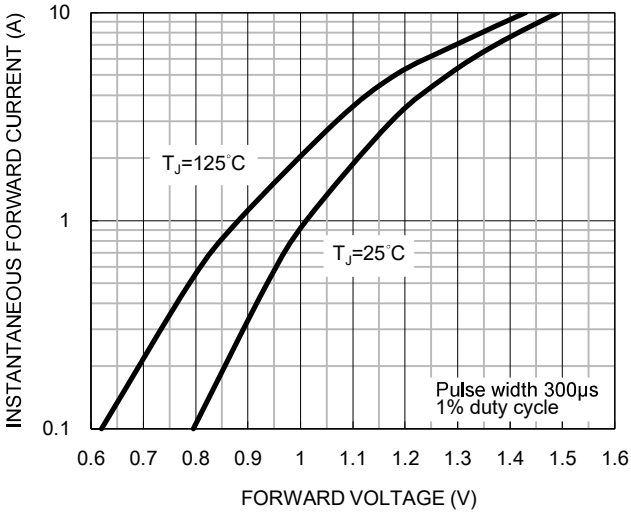
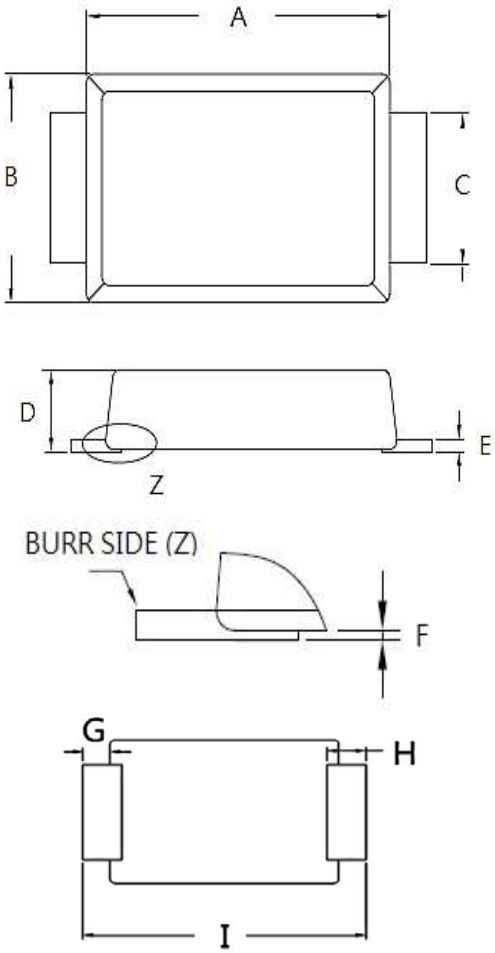


Fig.4 Typical Forward Characteristics



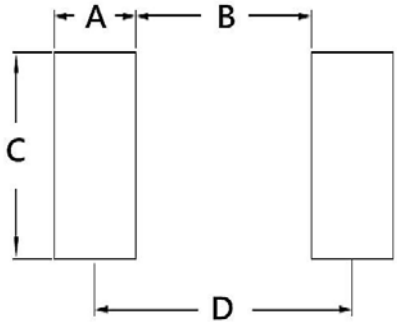
PACKAGE OUTLINE DIMENSIONS

SOD-128



DIM	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	3.60	4.00	0.142	0.157
B	2.30	2.70	0.091	0.106
C	1.60	1.90	0.063	0.075
D	0.90	1.10	0.035	0.043
E	0.10	0.22	0.004	0.009
F	0.00	0.10	0.000	0.004
G	0.30	0.60	0.012	0.024
H	0.40	0.80	0.016	0.031
I	4.40	5.00	0.173	0.197

SUGGESTED PAD LAYOUT



DIM	Unit (mm)	Unit (inch)
A	1.40	0.055
B	3.00	0.118
C	2.10	0.082
D	4.40	0.173

MARKING DIAGRAM

P/N = Marking Code
YW = Date Code
F = Factory Code

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