

1.5A, 50V - 1000V Silicon Rectifier

FEATURES

- High efficiency, Low V_F
- High current capability
- High reliability
- Low power loss
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC

APPLICATIONS

- Switching mode power supply
- HV-Charging
- Power Inverters
- PFC
- Solar/Wind Renewable Energy
- Motor Drives

MECHANICAL DATA

- Case: DO-204AL (DO-41)
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Pure tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 1A whisker test
- Polarity: As marked
- Weight: 0.33 g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_{F(AV)}$	1.5	A
V_{RRM}	50 - 1000	V
I_{FSM}	50	A
T_{JMAX}	125	°C
Package	DO-204AL (DO-41)	
Configuration	Single Die	



DO-204AL (DO-41)

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)									
PARAMETER	SYMBOL	1N	1N	1N	1N	1N	1N	1N	UNIT
		5391S	5392S	5393S	5395S	5397S	5398S	5399S	
Marking code on the device		1N5391S	1N5392S	1N5393S	1N5395S	1N5397S	1N5398S	1N5399S	
Repetitive peak reverse voltage	V_{RRM}	50	100	200	400	600	800	1000	V
Reverse voltage, total rms value	$V_{R(RMS)}$	35	70	140	280	420	560	700	V
Maximum DC blocking voltage	V_{DC}	50	100	200	400	600	800	1000	V
Forward current	$I_{F(AV)}$	1.5							A
Surge peak forward current, 8.3 ms single half sine-wave superimposed on rated load per diode	I_{FSM}	50							A
Junction temperature	T_J	- 55 to +125							°C
Storage temperature	T_{STG}	- 55 to +125							°C

THERMAL PERFORMANCE			
PARAMETER	SYMBOL	LIMIT	UNIT
Junction-to-lead thermal resistance	$R_{\theta JL}$	25	°C/W
Junction-to-ambient thermal resistance	$R_{\theta JA}$	65	°C/W
Junction-to-case thermal resistance	$R_{\theta JC}$	22	°C/W

ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted)						
PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage per diode ⁽¹⁾	1N5391S	$I_F = 1.5\text{A}, T_J = 25^\circ\text{C}$	V_F	-	1.1	V
	1N5392S			-	1.0	V
	1N5393S					
	1N5395S					
	1N5397S					
	1N5398S					
1N5399S						
Reverse current @ rated V_R per diode ⁽²⁾		$T_J = 25^\circ\text{C}$	I_R	-	5	μA
		$T_J = 125^\circ\text{C}$		-	50	μA
Junction capacitance		1 MHz, $V_R = 4.0\text{V}$	C_J	30	-	pF

Notes:

1. Pulse test with $PW = 0.3\text{ ms}$
2. Pulse test with $PW = 30\text{ ms}$

ORDERING INFORMATION			
PART NO.	PACKING CODE	PACKAGE	PACKING
1N539xS (Note 1)	A0	DO-41	3,000 / Ammo box (52mm taping)
	R0	DO-41	5,000 / 13" Paper reel
	R1	DO-41	5,000 / 13" Paper reel (Reverse)
	B0	DO-41	1,000 / Bulk packing

Note:

1. "x" defines voltage from 50V (1N5391S) to 1000V (1N5399S)

EXAMPLE P/N			
EXAMPLE P/N	PART NO.	PACKING CODE	DESCRIPTION
1N5391S A0	1N5391S	A0	

CHARACTERISTICS CURVES

($T_A = 25^\circ\text{C}$ unless otherwise noted)

Fig.1 Forward Current Derating Curve

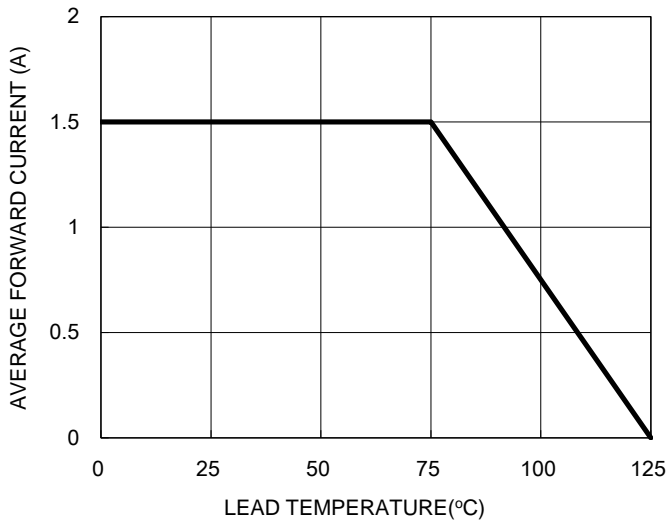


Fig.2 Typical Junction Capacitance

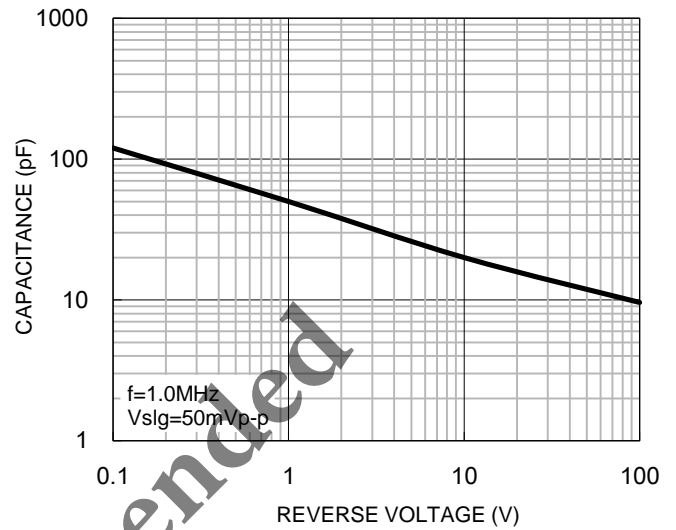


Fig.3 Typical Reverse Characteristics

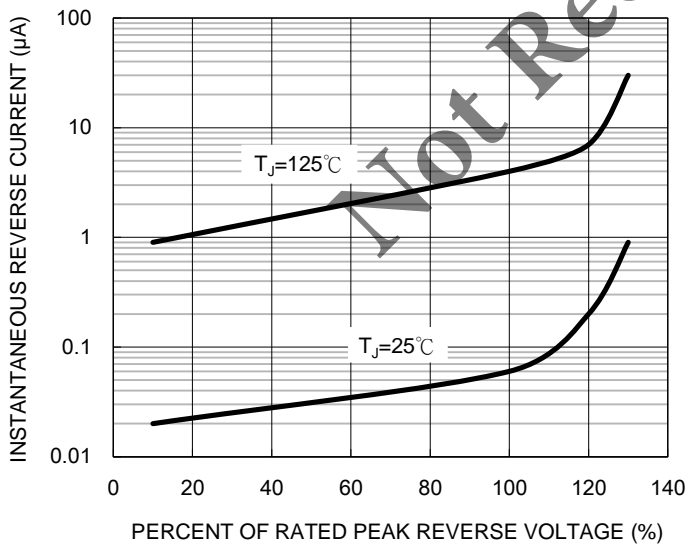
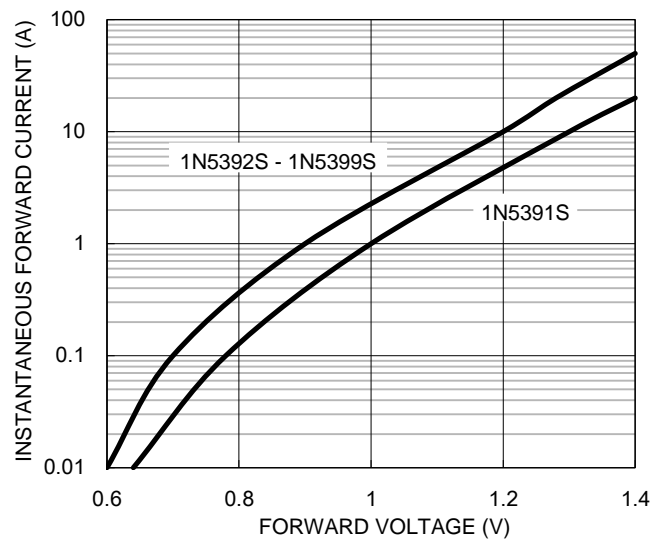


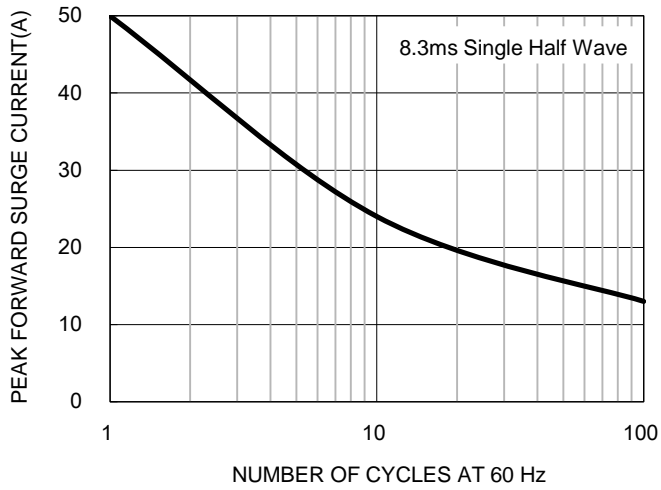
Fig.4 Typical Forward Characteristics



CHARACTERISTICS CURVES

($T_A = 25^\circ\text{C}$ unless otherwise noted)

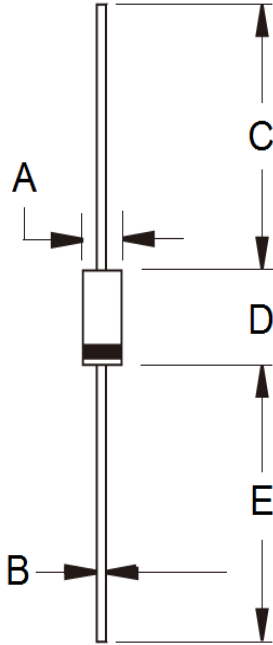
Fig.5 Maximum Non-repetitive Forward Surge Current



Not Recommended

PACKAGE OUTLINE DIMENSIONS

DO-204AL (DO-41)



DIM.	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	2.00	2.70	0.079	0.106
B	0.71	0.86	0.028	0.034
C	25.40	-	1.000	-
D	4.20	5.20	0.165	0.205
E	25.40	-	1.000	-

MARKING DIAGRAM



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

Not Recommended

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