Stud-Mounted Silicon Rectifier Diodes, 15 A

DO-203AB (DO-5)

DESCRIPTION/FEATURES

RoHS COMPLIANT

- Low thermal impedance
- High case temperature
- Excellent reliability
- Maximum design flexibility
- Can be made to meet stringent military, aerospace and other high reliability requirements
- Compliant to RoHS directive 2002/95/EC

PRODUCT SUMMARY	
$I_{F(AV)}$	15 A

MAJOR RATINGS AND CHARACTERISTICS			
PARAMETER	TEST CONDITIONS	VALUES	UNITS
$I_{F(AV)}$		15 (1)	A
	T_C	150 (1)	°C
I_{FSM}	50 Hz	239	A
	60 Hz	250 (1)	
I^2t	50 Hz	286	A^2s
	60 Hz	260	
$I^2\sqrt{t}$		3870	$A^2\sqrt{s}$
V_{RRM}	Range	50 to 600	V
T_J		- 65 to 175	°C

Note
(1) JEDEC registered values

ELECTRICAL SPECIFICATIONS

VOLTAGE RATINGS		
TYPE NUMBER	V_{RRM}, MAXIMUM REPETITIVE PEAK REVERSE VOLTAGE (T_J = - 65 °C TO 175 °C) V	V_{RM}, MAXIMUM DIRECT REVERSE VOLTAGE (T_J = - 65 °C TO 175 °C) V
1N3208	50 (1)	50 (1)
1N3209	100 (1)	100 (1)
1N3210	200 (1)	200 (1)
1N3211	300 (1)	300 (1)
1N3212	400 (1)	400 (1)
1N3213	500 (1)	500 (1)
1N3214	600 (1)	600 (1)

Notes
(1) JEDEC registered values
- Basic type number indicates cathode to case. For anode to case, add “R” to part number, e.g. 1N3208R, 1N3209R

FORWARD CONDUCTION

PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum average forward current at case temperature	$I_{F(AV)}$	180° sinusoidal conduction		15 (1)	A
				150 (1)	°C
Maximum peak one cycle non-repetitive surge current	I_{FSM}	Half cycle 50 Hz sine wave or 6 ms rectangular pulse	Following any rated load condition and with rated V_{RRM} applied	239	A
		Half cycle 60 Hz sine wave or 5 ms rectangular pulse		250 (1)	
		Half cycle 50 Hz sine wave or 6 ms rectangular pulse	Following any rated load condition and with V_{RRM} applied following surge = 0	284	
		Half cycle 60 Hz sine wave or 5 ms rectangular pulse		297	
Maximum I^2t for fusing	I^2t	t = 10 ms	With rated V_{RRM} applied following surge, initial T_J = 150 °C	286	A^2s
		t = 8.3 ms		260	
Maximum I^2t for individual device fusing		t = 10 ms	With V_{RRM} = 0 following surge, initial T_J = 150 °C	403	
		t = 8.3 ms		368	
Maximum $I^2\sqrt{t}$ for individual device fusing	$I^2\sqrt{t}$ (2)	t = 0.1 ms to 10 ms, V_{RRM} = 0 following surge		3870	$A^2\sqrt{s}$
Maximum forward voltage drop	V_{FM}	$I_{F(AV)}$ = 15 A (47.1 A peak), T_C = 150 °C		1.5 (1)	V
Maximum average reverse current	$I_{R(AV)}$	Maximum rated $I_{F(AV)}$ and T_C = 150 °C		10 (1)	mA

Notes

(1) JEDEC registered values

(2) I^2t for time $t_x = I^2\sqrt{t} \times \sqrt{t_x}$

THERMAL AND MECHANICAL SPECIFICATIONS

PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum junction operating and storage temperature range	T_J, T_{Stg}		- 65 to 175 (1)	°C
Maximum internal thermal resistance, junction to case	R_{thJC}	DC operation	0.65	°C/W
Thermal resistance, case to sink	R_{thCS}	Mounting surface, smooth, flat and greased	0.25	
Maximum allowable mounting torque (+ 0 %, - 10 %)		Not lubricated thread, tighting on nut (2)	3.4 (30)	
		Lubricated thread, tighting on nut (2)	2.3 (20)	
		Not lubricated thread, tighting on hexagon (3)	4.2 (37)	
		Lubricated thread, tighting on hexagon (3)	3.2 (28)	
Weight			28.5	g
			1	oz.
Case style		JEDEC	DO-203AB (DO-5)	

Notes

(1) JEDEC registered values

(2) Recommended for pass-through holes

(3) Recommended for holed threaded heatsinks

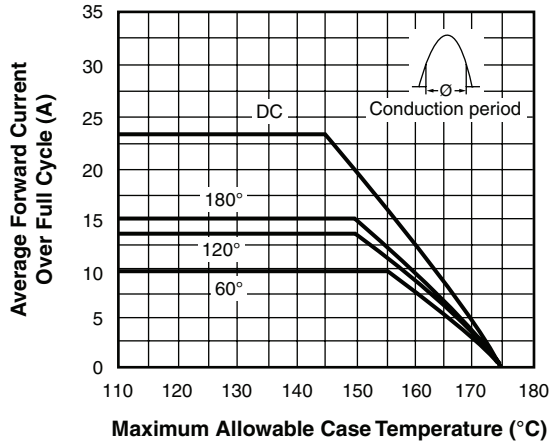

Fig. 1 - Average Forward Current vs.
Maximum Allowable Case Temperature

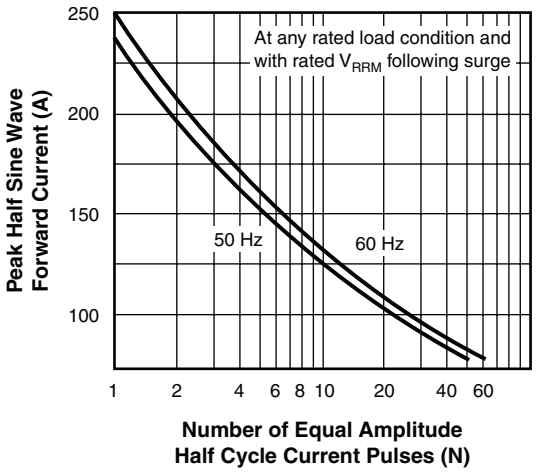

Fig. 2 - Maximum Non-Repetitive Surge Current vs.
Number of Current Pulses

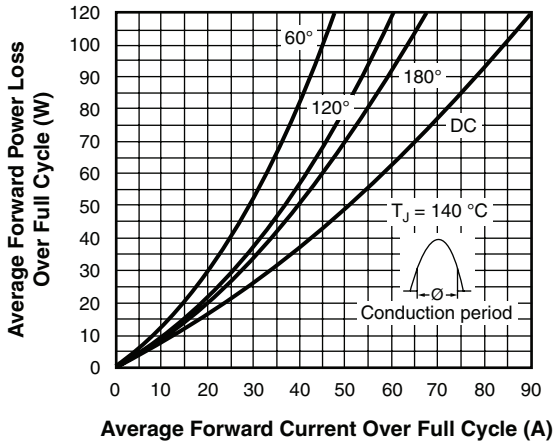

Fig. 3 - Maximum Low Level Forward Power Loss vs.
Average Forward Current

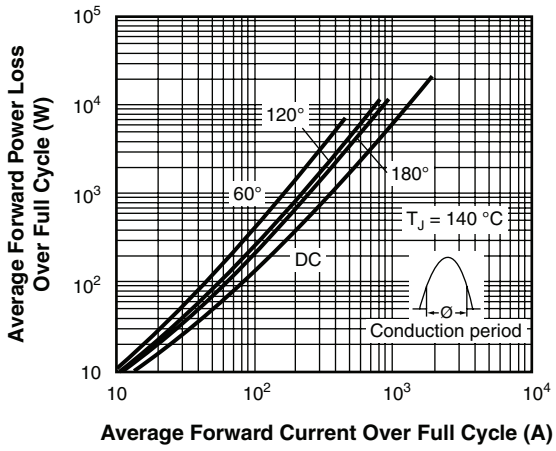

Fig. 4 - Maximum High Level Forward Power Loss vs.
Average Forward Current

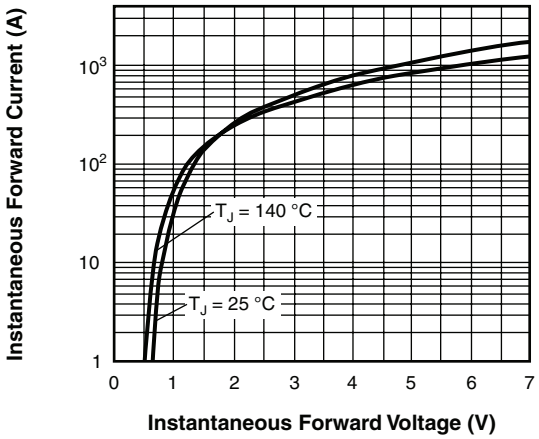

Fig. 5 - Maximum Forward Voltage vs. Forward Current

LINKS TO RELATED DOCUMENTS	
Dimensions	www.vishay.com/doc?95360

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Телефон: 8 (812) 309-75-97 (многоканальный)
Факс: 8 (812) 320-03-32
Электронная почта: ocean@oceanchips.ru
Web: http://oceanchips.ru/
Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А