

Fast Recovery Diodes (Stud Version), 6 A, 12 A



DO-4 (DO-203AA)

FEATURES

- Short reverse recovery time
- Low stored charge
- Wide current range
- Excellent surge capabilities
- Standard JEDEC® types
- Stud cathode and stud anode versions
- Fully characterized reverse recovery conditions
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912


RoHS
COMPLIANT

TYPICAL APPLICATIONS

- DC power supplies
- Inverters
- Converters
- Choppers
- Ultrasonic systems
- Freewheeling diodes

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	6 A, 12 A
Package	DO-4 (DO-203AA)
Circuit configuration	Single

MAJOR RATINGS AND CHARACTERISTICS

SYMBOL	TEST CONDITIONS	1N3879(R) TO 1N3883(R)	1N3889(R) TO 1N3893(R)	UNITS
$I_{F(AV)}$		6 ⁽¹⁾	12 ⁽¹⁾	A
	T_C maximum	100	100	°C
$I_{F(RMS)}$		9.5	19	A
I_{FSM}	50 Hz	72	145	A
	60 Hz	75 ⁽¹⁾	150 ⁽¹⁾	
I^2t	50 Hz	26	103	A ² s
	60 Hz	23	94	
$I^2\sqrt{t}$		363	856	$I^2\sqrt{s}$
V_{RRM}	Range	50 to 400 ⁽¹⁾	50 to 400 ⁽¹⁾	V
t_{rr}		See Recovery Characteristics table	See Recovery Characteristics table	ns
T_J	Range	-65 to +150	-65 to +150	°C

Note

⁽¹⁾ JEDEC® registered values



ELECTRICAL SPECIFICATIONS

VOLTAGE RATINGS						
TYPE NUMBER	VOLTAGE CODE	V _{RRM} , MAXIMUM REPETITIVE PEAK AND OFF-STATE VOLTAGE V	V _{RSM} , MAXIMUM NON-REPETITIVE PEAK VOLTAGE V	I _{RRM} MAXIMUM AT T _J = 25 °C μA	I _{RRM} MAXIMUM AT T _J = 100 °C mA	I _{RRM} MAXIMUM AT T _J = 150 °C mA
1N3879(R)	-	50	75	15 ⁽¹⁾	1.0 ⁽¹⁾	3.0 ⁽¹⁾
1N3880(R)		100	150			
1N3881(R)		200	250			
1N3882(R)		300	350			
1N3883(R)		400	450			
1N3889(R)	-	50	75	25 ⁽¹⁾	3.0 ⁽¹⁾	5.0 ⁽¹⁾
1N3890(R)		100	150			
1N3891(R)		200	250			
1N3892(R)		300	350			
1N3893(R)		400	450			

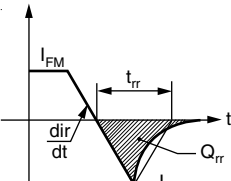
Note

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FORWARD CONDUCTION							
PARAMETER	SYMBOL	TEST CONDITIONS			1N3879(R) TO 1N3883(R)	1N3889(R) TO 1N3893(R)	UNITS
Maximum average forward current at case temperature	I _{F(AV)}	180° conduction, half sine wave DC			6 ⁽¹⁾	12 ⁽¹⁾	A
Maximum RMS current	I _{F(RMS)}				100	100	°C
					9.5	19	
Maximum peak, one-cycle non-repetitive forward current	I _{FSM}	t = 10 ms	No voltage reapplied	Sinusoidal half wave, initial T _J = 150 °C	85	170	A
		t = 8.3 ms			90	180	
		t = 10 ms	100 % V _{RRM} reapplied		72	145	
		t = 8.3 ms			75 ⁽¹⁾	150 ⁽¹⁾	
Maximum I ² t for fusing	I ² t	t = 10 ms	No voltage reapplied		36	145	A ² s
		t = 8.3 ms			33	130	
		t = 10 ms	100 % V _{RRM} reapplied		26	103	
		t = 8.3 ms			23	94	
Maximum I ² √t for fusing	I ² √t	t = 0.1 ms to 10 ms, no voltage reapplied			363	1452	A ² √s
Maximum forward voltage drop	V _{FM}	T _J = 25 °C; I _F = Rated I _{F(AV)} (DC)			1.4 ⁽¹⁾	1.4 ⁽¹⁾	V
		T _C = 100 °C; I _{FM} = π x rated I _{F(AV)}			1.5 ⁽¹⁾	1.5 ⁽¹⁾	

Note

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RECOVERY CHARACTERISTICS						
PARAMETER	SYMBOL	TEST CONDITIONS	1N3879(R) TO 1N3883(R)	1N3889(R) TO 1N3893(R)	UNITS	
Maximum reverse recovery time	t _{rr}	T _J = 25 °C, I _F = 1 A to V _R = 30 V, dI _F /dt = 100 A/μs	150	150	ns	
		T _J = 25 °C, dI _F /dt = 25 A/μs, I _{FM} = π x rated I _{F(AV)}	300 ⁽¹⁾	300 ⁽¹⁾		
Maximum peak recovery current	I _{RM(REC)}	I _{FM} = π x rated I _{F(AV)}	4 ⁽¹⁾	5 ⁽¹⁾	-	
Maximum reverse recovery charge	Q _{rr}	T _J = 25 °C, I _F = 1 A to V _R = 30 V, dI _F /dt = 100 A/μs	400	350	nC	
		T _J = 25 °C, dI _F /dt = 25 A/μs, I _{FM} = π x rated I _{F(AV)}	400	400		

Note

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