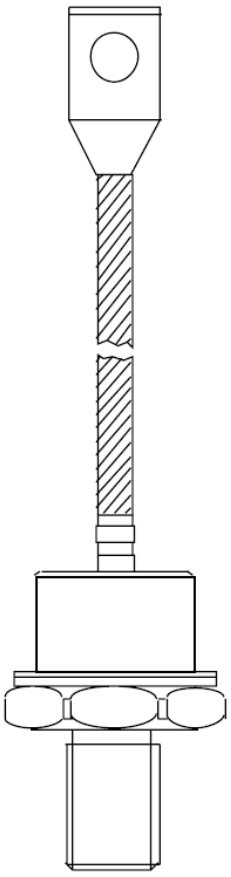
AMERICAN MICROSEMICONDUCTOR

SD400R08PV

Technical Specifications

DESCRIPTION

Standard recovery diode with stud reverse polarity (anode to stud).
Stud base is a DO-205AB (DO-9) 3/4" 16UNF-2A package.
Non-isolated lead. Glass-metal seal (only up to 1600V).



case style
DO-205AB (DO-9)

TYPICAL APPLICATIONS

- Converters
- Power supplies
- Machine tool controls
- High power drives
- Medium traction applications

MAJOR RATINGS AND CHARACTERISTICS

Parameters		SD400R08PV	Units
$I_{F(AV)}$		400	A
	@ T_C	120	°C
$I_{F(RMS)}$		630	A
I_{FSM}	@ 50Hz	8250	A
	@ 60Hz	8640	A
I^2t	@ 50Hz	340	KA^2s
	@ 60Hz	311	KA^2s
V_{RRM} range		400 to 2400	V
T_J		- 40 to 190	°C

ELECTRICAL SPECIFICATIONS

Voltage Ratings

V_{RRM}, maximum repetitive peak reverse voltage V	V_{RSM}, maximum non-repetitive peak rev. voltage V	I_{RRM} max. @ T_J = T_J max. mA
800	900	15

Forward Conduction

Parameter		SD400R08PV	Units	Conditions
$I_{F(AV)}$	Max. average forward current	400	A	180° conduction, half sine wave
	@ Case temperature	120	°C	
$I_{F(AV)}$	Max. average forward current	480	A	180° conduction, half sine wave
	@ Case temperature	100	°C	
$I_{F(RMS)}$	Max. RMS forward current	630	A	DC @ 110°C case temperature

American Microsemiconductor Inc.
133 Kings Road, Madison, NJ 07940
tel. 973-377-9566 fax. 973-377-3078

AS/EN/JISQ/ 9100:2009 REV C and ISO 9001:2008 Certificate No: 45325
http://www.americanmicrosemiconductor.com

Electrical Specifications / Forward Conduction (cont.)

I_{FSM}	Max. peak, one-cycle forward, non-repetitive surge current	8250	A	t = 10ms	No voltage reapplied	Sinusoidal half wave, Initial $T_J = T_J$ max.
		8640		t = 8.3ms		
		6940		t = 10ms	100% V_{RRM} reapplied	
		7270		t = 8.3ms		
I^2t	Maximum I^2t for fusing	340	KA^2s	t = 10ms	No voltage reapplied	
		311		t = 8.3ms		
		241		t = 10ms	100% V_{RRM} reapplied	
		220		t = 8.3ms		
$I^2\sqrt{t}$	Maximum $I^2\sqrt{t}$ for fusing	3400	$KA^2\sqrt{s}$	t = 0.1 to 10ms, no voltage reapplied		
$V_{F(TO)1}$	Low level value of threshold voltage	0.80	V	$(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$, $T_J = T_J$ max.		
$V_{F(TO)2}$	High level value of threshold voltage	0.85		$(I > \pi \times I_{F(AV)})$, $T_J = T_J$ max.		
r_{f1}	Low level value of forward slope resistance	0.55	mΩ	$(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$, $T_J = T_J$ max.		
r_{f2}	High level value of forward slope resistance	0.51		$(I > \pi \times I_{F(AV)})$, $T_J = T_J$ max.		
V_{FM}	Max. forward voltage drop	1.62	V	I_{pk}= 1500A, $T_J = T_J$ max, t_p = 10ms sinusoidal wave		

Thermal and Mechanical Specifications

	Parameter	SD400R08PV	Units	Conditions
T_J	Max. junction operating temperature range	-40 to 190	°C	
T_{stg}	Max. storage temperature range	-55 to 200		
R_{thJC}	Max. thermal resistance, junction to case	0.11	K/W	DC operation
R_{thCS}	Max. thermal resistance, case to heatsink	0.04		Mounting surface, smooth, flat and greased
T	Max. allowed mounting torque ±10%	27	Nm	Not lubricated threads
wt	Approximate weight	250	g	
	Case style	DO-205AB (DO-9)		See Outline Table

ΔR_{thJC} Conduction

(The following table shows the increment of thermal resistence R_{thJC} when devices operate at different conduction angles than DC)

Conduction angle	Sinusoidal conduction	Rectangular conduction	Units	Conditions
180°	0.020	0.013	K/W	$T_J = T_J$ max.
120°	0.023	0.023		
90°	0.029	0.031		
60°	0.042	0.044		
30°	0.073	0.074		