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45L(R), 150K(R), 150KS(R) Series High Power Products

Standard Recovery Diodes (Stud Version), 150 A



DO-205AA (DO-8)

FEATURES

- Alloy diode
- High current carrying capability
- High surge current capabilities
- Stud cathode and stud anode version
- Designed and qualified for industrial level

TYPICAL APPLICATIONS

- Battery chargers
- Welders
- Machine tool controls
- High power drives
- Medium traction applications
- Freewheeling diodes

MAJOR RATINGS AND CHARACTERISTICS

PARAMETER	TEST CONDITIONS	VALUES	UNITS
$I_{F(AV)}$		150	A
	T_c	150	°C
$I_{F(RMS)}$		235	A
I_{FSM}	50 Hz	3570	A
	60 Hz	3740	
I^2t	50 Hz	64	kA ² s
	60 Hz	58	
V_{RRM}	Range	100 to 600	V
T_J		- 40 to 200	°C



Quality Semi-Conductors

ELECTRICAL SPECIFICATIONS

VOLTAGE RATINGS				
TYPE NUMBER	VOLTAGE CODE	V_{RRM} , MAXIMUM REPETITIVE PEAK REVERSE VOLTAGE V	V_{RSM} , MAXIMUM NON-REPETITIVE PEAK REVERSE VOLTAGE V	I_{RRM} MAXIMUM AT $T_J = 175\text{ }^\circ\text{C}$ mA
45L(R) 150K(R) 150KS(R)	10	100	200	35
	20	200	300	
	30	300	400	
	40	400	500	
	60	600	720	

FORWARD CONDUCTION					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum average forward current at case temperature	$I_{F(AV)}$	180° conduction, half sine wave		150	A
				150	°C
Maximum RMS forward current	$I_{F(RMS)}$	DC at 142 °C case temperature		235	A
Maximum peak, one cycle forward, non-repetitive surge current	I_{FSM}	t = 10 ms	No voltage reapplied	3570	
		t = 8.3 ms	No voltage reapplied	3740	
		t = 10 ms	100 % V_{RRM} reapplied	3000	
		t = 8.3 ms	100 % V_{RRM} reapplied	3140	
Maximum I^2t for fusing	I^2t	t = 10 ms	No voltage reapplied	64	kA ² s
		t = 8.3 ms	No voltage reapplied	58	
		t = 10 ms	100 % V_{RRM} reapplied	45	
		t = 8.3 ms	100 % V_{RRM} reapplied	41	
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	t = 0.1 to 10 ms, no voltage reapplied		640	kA ² √s
Low level value of threshold voltage	$V_{F(TO)1}$	(16.7 % $\times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)}$), $T_J = T_J$ maximum		0.67	V
High level value of threshold voltage	$V_{F(TO)2}$	(I > $\pi \times I_{F(AV)}$), $T_J = T_J$ maximum		0.83	
Low level value of forward slope resistance	r_{f1}	(16.7 % $\times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)}$), $T_J = T_J$ maximum		1.42	mΩ
High level value of forward slope resistance	r_{f2}	(I > $\pi \times I_{F(AV)}$), $T_J = T_J$ maximum		0.91	
Maximum forward voltage drop	V_{FM}	$I_{pk} = 471\text{ A}$, $T_J = 25\text{ }^\circ\text{C}$, $t_p = 10\text{ ms}$ sinusoidal wave		1.33	V

THERMAL AND MECHANICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum junction operating and storage temperature range	T_J, T_{Stg}			- 40 to 200	°C
Maximum thermal resistance, junction to case	R_{thJC}	DC operation		0.25	K/W
Maximum thermal resistance, case to heatsink	R_{thCS}	Mounting surface, smooth, flat and greased		0.10	
Mounting torque 45L	minimum	Not lubricated threads		14.1 (125)	N · m (lbf · in)
	maximum			17.0 (150)	
	minimum	Lubricated threads		12.2 (108)	
	maximum			15.0 (132)	
Mounting torque 150K 150KS	minimum	Not lubricated threads		11.3 (100)	N · m (lbf · in)
	maximum			14.1 (125)	
	minimum	Lubricated threads		9.5 (85)	
	maximum			12.5 (110)	
Approximate weight				100	g
				3.5	oz.
Case style	45L	See dimensions - link at the end of datasheet		DO-205AC (DO-30)	
	150K-A			DO-205AA (DO-8)	
	150KS			B-42	