

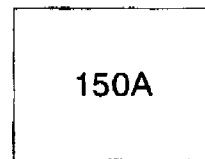
SERIES 45L(R), 150K/ KS(R)

STANDARD RECOVERY DIODES

Stud Version

Features

- Alloy diode
- High current carrying capability
- High surge current capabilities
- Stud cathode and stud anode version

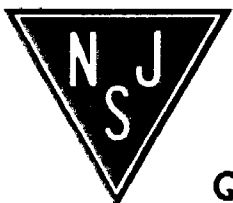
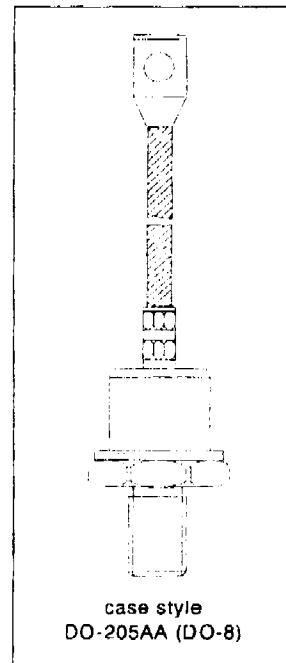


Typical Applications

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

Major Ratings and Characteristics

Parameters	45L /150K	Units
$I_{F(AV)}$	150	A
@ T_C	150	$^{\circ}C$
$I_{F(RMS)}$	235	A
I_{FSM} @ 50Hz	3570	A
@ 60Hz	3740	A
I^2t @ 50Hz	64	KA^2s
@ 60Hz	58	KA^2s
V_{RRM} range	100 to 600	V
T_J	- 40 to 200	$^{\circ}C$



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ELECTRICAL SPECIFICATIONS

Voltage Ratings

Type number	Voltage Code	V_{RRM} . maximum repetitive peak reverse voltage V	V_{RSM} . maximum non-repetitive peak rev. voltage V	I_{RRM} max. @ $T_J = 175^\circ\text{C}$ 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	45L/150K	Units	Conditions
$I_{F(AV)}$ Max. average forward current @ Case temperature	150	A	180° conduction, half sine wave
$I_{F(RMS)}$ Max. RMS forward current	235	A	DC @ 142°C case temperature
I_{FSM} Max. peak, one-cycle forward, non-repetitive surge current	3570	A	t = 10ms No voltage
	3740		t = 8.3ms reapplied
	3000		t = 10ms 100% V_{RRM}
	3140		t = 8.3ms reapplied
P _t Maximum P _t for fusing	64	KA ² s	t = 10ms No voltage
	58		t = 8.3ms reapplied
	45		t = 10ms 100% V_{RRM}
	41		t = 8.3ms reapplied
P _{st} Maximum P _{st} for fusing	640	KA ² .s	t = 0.1 to 10ms, no voltage reapplied
$V_{F(TO1)}$ Low level value of threshold voltage	0.67	V	$(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)}), T_J = T_{J \text{ max.}}$
$V_{F(TO2)}$ High level value of threshold voltage	0.83		$(I > \pi \times I_{F(AV)}), T_J = T_{J \text{ max.}}$
r_{f1} Low level value of forward slope resistance	1.42	mΩ	$(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)}), T_J = T_{J \text{ max.}}$
r_{f2} High level value of forward slope resistance	0.91		$(I > \pi \times I_{F(AV)}), T_J = T_{J \text{ max.}}$
V_{FM} Max. forward voltage drop	1.33	V	$I_{pk} = 471\text{A}, T_J = 25^\circ\text{C}, t_p = 10\text{ms}$ sinusoidal wave

Thermal and Mechanical Specifications

Parameter	45L/150K	Units	Conditions	
T_J Max. junction operating temperature range	-40 to 200	°C		
T_{stg} Max. storage temperature range	-40 to 200			
R_{thJC} Max. thermal resistance, junction to case	0.25	K/W	DC operation	
R_{thCS} Max. thermal resistance, case to heatsink	0.10		Mounting surface, smooth, flat and greased	
T Mounting torque	45L	Min. 14.1 (125)	Nm (lbf-in)	Not lubricated threads
		Max. 17.0 (150)		
		Min. 12.2 (108)		
	150K 150KS	Min. 11.3 (100)	Nm (lbf-in)	Not lubricated threads
		Max. 14.1 (125)		
		Min. 9.5 (85)		
	Max. 12.5 (110)		Lubricated threads	
wt Approximate weight	100 (3.5)	g (oz)		
Case style	45L	DO-205AC (DO-30)	See Outline Table	
	150K-A	DO-205AA (DO-8)		
	150KS	B-42		

ΔR_{INC} Conduction

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

Conduction angle	Sinusoidal conduction	Rectangular conduction	Units	Conditions
180°	0.031	0.023	K/W	$T_j = T_j \text{ max.}$
120°	0.038	0.040		
90°	0.048	0.053		
60°	0.071	0.075		
30°	0.120	0.121		

Ordering Information Table

Device Code

45	L	R	60
①	②	③	④

- ① - 45 = Standard version
- ② - L = Essential Part Number
- ③ - R = Stud Reverse Polarity (Anode to Stud)
None = Stud Normal Polarity (Cathode to Stud)
- ④ - Voltage code: Code x 10 = V_{RRM} (See Voltage Ratings table)

Ordering Information Table

Device Code

15	0	K	R	60	A
①	②	③	④	⑤	⑥

- ① - 15 = Essential Part Number
- ② - 0 = Standard Device
- ③ - Case Style
K = DO205AA (DO-8)
KS = B-42
- ④ - R = Stud Reverse Polarity (Anode to Stud)
None = Stud Normal Polarity (Cathode to Stud)
- ⑤ - Voltage code: Code x 10 = V_{RRM} (See Voltage Ratings table)
- ⑥ - A = Essential Part Number for 150K (Omitted for 150KS)

NOTE: For Metric Device M12 x 1.75 Contact Factory

Outline Table

45L
Case Style
DO-205AC (DO-30)

All dimensions in millimeters (inches)

Outline Table

