

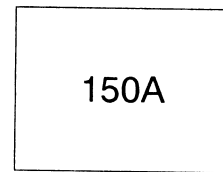
## SERIES 45L(R), 150K/ KS(R)

### STANDARD RECOVERY DIODES

Stud Version

#### Features

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

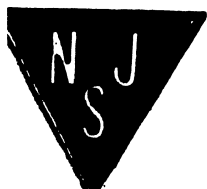
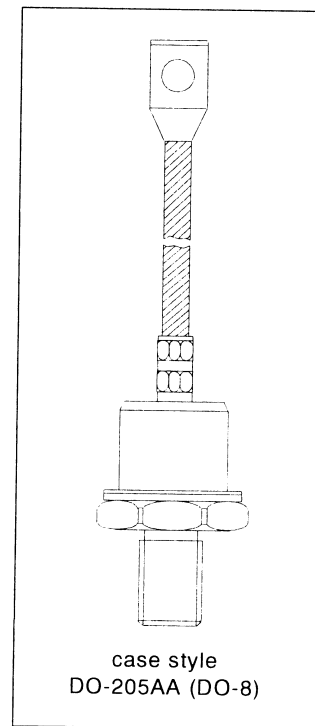


#### Typical Applications

- 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	°C
$I_{F(RMS)}$	235	A
$I_{FSM}$ @ 50Hz	3570	A
@ 60Hz	3740	A
$I^2t$ @ 50Hz	64	KA <sup>2</sup> s
@ 60Hz	58	KA <sup>2</sup> s
$V_{RRM}$ range	100 to 600	V
$T_J$	- 40 to 200	°C



## 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
	150	°C	
$I_{F(RMS)}$ 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
$I^2t$ Maximum $I^2t$ for fusing	64	KA <sup>2</sup> s	t = 10ms No voltage
	58		t = 8.3ms reapplied
	45		t = 10ms 100% $V_{RRM}$
	41		t = 8.3ms reapplied
$I^2\sqrt{t}$ Maximum $I^2\sqrt{t}$ for fusing	640	KA <sup>2</sup> √s	t = 0.1 to 10ms, no voltage reapplied
$V_{F(TO)1}$ Low level value of threshold voltage	0.67	V	(16.7% x $\pi$ x $I_{F(AV)} < I < \pi$ x $I_{F(AV)}$ ), $T_J = T_J$ max.
$V_{F(TO)2}$ High level value of threshold voltage	0.83		( $I > \pi$ x $I_{F(AV)}$ ), $T_J = T_J$ max.
$r_{f1}$ Low level value of forward slope resistance	1.42	mΩ	(16.7% x $\pi$ x $I_{F(AV)} < I < \pi$ x $I_{F(AV)}$ ), $T_J = T_J$ max.
$r_{f2}$ High level value of forward slope resistance	0.91		( $I > \pi$ x $I_{F(AV)}$ ), $T_J = T_J$ 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
		Min.	12.2 (108)		Lubricated threads
	150K 150KS	Min.	11.3 (100)	Nm (lbf-in)	Not lubricated threads
		Min.	9.5 (85)		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			

### $\Delta R_{thJC}$ Conduction

(The following table shows the increment of thermal resistance  $R_{thJC}$  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

