

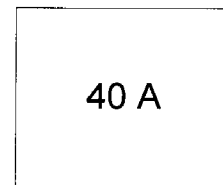
## 40HF(R) SERIES

### STANDARD RECOVERY DIODES

Stud Version

#### Features

- High surge current capability
- Stud cathode and stud anode version
- Leaded version available
- Types up to 1600V  $V_{RRM}$

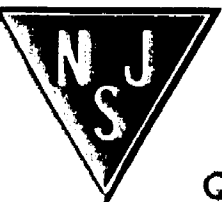


#### Typical Applications

- Battery charges
- Converters
- Power supplies
- Machine tool controls
- Welding

#### Major Ratings and Characteristics

Parameters	40HF(R)		Units
	10 to 120	140, 160	
$I_{F(AV)}$	40	40	A
@ $T_c$	140	110	°C
$I_{F(RMS)}$	62		A
$I_{FSM}$ @ 50Hz	570		A
@ 60Hz	595		A
$I^2t$ @ 50Hz	1600		A <sup>2</sup> s
@ 60Hz	1450		A <sup>2</sup> s
$V_{RRM}$ range	100 to 1200	1400, 1600	V
$T_j$ range	- 65 to 190	- 65 to 160	°C



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## 40HF(R) Series

### 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	$I_{RRM}$ max. @ $T_J = T_J$ max. mA
40HF(R)	10	100	200	9
	20	200	300	
	40	400	500	
	60	600	700	
	80	800	900	
	100	1000	1100	
	120	1200	1300	
	140	1400	1500	4.5
	160	1600	1700	

#### Forward Conduction

Parameter	40HF(R)		Units	Conditions		
	10 to 120	140, 160				
$I_{F(AV)}$ Max. average forward current @ Case temperature	40	40	A	180° conduction, half sine wave		
$I_{F(RMS)}$ Max. RMS forward current	62		A			
$I_{FSM}$ Max. peak, one-cycle forward, non-repetitive surge current	570		A	t = 10ms	No voltage reappplied	Sinusoidal half wave. Initial $T_J = T_J$ max.
	595			t = 8.3ms	reappplied	
	480			t = 10ms	100% $V_{RRM}$	
	500			t = 8.3ms	reappplied	
$I^2t$ Maximum $I^2t$ for fusing	1600		A <sup>2</sup> s	t = 10ms	No voltage reappplied	
	1450			t = 8.3ms	reappplied	
	1150			t = 10ms	100% $V_{RRM}$	
	1050			t = 8.3ms	reappplied	
$I^2vt$ Maximum $I^2vt$ for fusing	16000		A <sup>2</sup> v s	t = 0.1 to 10ms, no voltage reappplied		
$V_{F(TO)}$ Value of threshold voltage (up to 1200V)	0.65		V	$T_J = T_J$ max.		
$V_{F(TO)}$ Value of threshold voltage (for 1400V, 1600V)	0.76		V	$T_J = T_J$ max.		
$r_f$ Value of forward slope resistance (up to 1200V)	4.29		mΩ	$T_J = T_J$ max.		
$r_f$ Value of forward slope resistance (for 1400V, 1600V)	3.8		mΩ	$T_J = T_J$ max.		
$V_{FM}$ Max. forward voltage drop	1.30	1.50	V	$I_{pk} = 125A$ , $T_J = 25^\circ C$ , $t_p = 400\mu s$ rectangular wave		

## 40HF(R) Series

### Thermal and Mechanical Specifications

Parameter	40HF(R)		Units	Conditions
	10 to 120	140 to 160		
$T_J$ Max. junction operating temperature range	-65 to 190	-65 to 160	°C	
$T_{stg}$ Max. storage temperature range	-65 to 190	-65 to 160		
$R_{thJC}$ Max. thermal resistance, junction to case	0.95		K/W	DC operation
$R_{thCS}$ Max. thermal resistance, case to heatsink	0.25			Mounting surface, smooth, flat and greased
$T$ Max. allowed mounting torque $\pm 10\%$	2.3 - 3.4		Nm	Not lubricated threads
	20 - 30		lbf·in	
wt Approximate weight	17 (0.6)		g (oz)	unleaded device
Case style	DO-203AB (DO5)			See Outline Table

### $\Delta R_{thJC}$ 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°	0.14	0.10	K/W	$T_J = T_{max}$
120°	0.16	0.17		
90°	0.21	0.22		
60°	0.30	0.31		
30°	0.50	0.50		

### Ordering Information Table

Device Code											
	<table border="1" style="margin: auto;"> <tr> <td style="padding: 2px 5px;">40</td> <td style="padding: 2px 5px;">HF</td> <td style="padding: 2px 5px;">R</td> <td style="padding: 2px 5px;">160</td> <td style="padding: 2px 5px;">M</td> </tr> <tr> <td style="text-align: center;">①</td> <td style="text-align: center;">②</td> <td style="text-align: center;">③</td> <td style="text-align: center;">④</td> <td style="text-align: center;">⑤</td> </tr> </table>	40	HF	R	160	M	①	②	③	④	⑤
40	HF	R	160	M							
①	②	③	④	⑤							
<b>1</b>	- 40 = Standard device 41 = Not isolated lead 42 = Isolated lead with silicone sleeve (Red = Reverse polarity) (Blue = Normal polarity)										
<b>2</b>	- Standard diode										
<b>3</b>	- None = Stud Normal Polarity (Cathode to Stud) R = Stud Reverse Polarity (Anode to Stud)										
<b>4</b>	- Voltage code: Code x 10 = $V_{RRM}$ (See Voltage Ratings table)										
<b>5</b>	- None = Stud base DO-203AB (DO-5) 1/4" 28UNF-2A M = Stud base DO-203AB (DO-5) M6 X 1										

**40HF(R) Series**

**Outlines Table**

