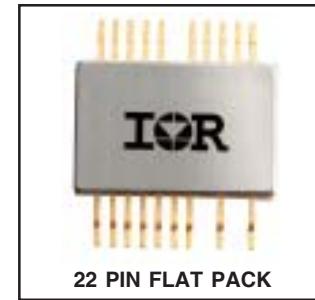


**Radiation Hardended, 100V,  
Single 10A, Solid State Relay**

**RDHA710FR10A1NK**

**Product Summary**

Part Number	Voltage	Current	Configuration	Rad Level
RDHA710FR10A1NK	100V	10A	Single DC	100K



**Description**

The RDHA710FR10A1NX is a radiation hardened Solid State Relay in a hermatic package. It is configured as a single pole single throw (SPST) normally open relay. This device is characterized for 100KRad (Si) total ionizing dose. The output MOSFET utilizes International Rectifier's R6 Technology.

**Features:**

- Total Dose Capability to 100KRad (Si)
- Optically Coupled
- 1000VDC Input-to-Output and Pin-to-Case Isolation
- Hermetically Sealed Ceramic Package

**Absolute Maximum Ratings @  $T_j = 25^\circ\text{C}$  (unless otherwise specified)**

Parameter	Symbol	Value	Units
Output Withstand Voltage	$V_O$ (OFF)	100	V
Output Current $\textcircled{S}$	$I_O$	10	A
Peak Output Current $\textcircled{S}$	$I_{O\text{ pk}}$	20	
Input Forward Current	$I_F$	40	mA
Peak Input Forward Current ( $t \leq 1.0\text{ms}$ )	$I_{F\text{ pk}}$	100	
Peak Input Reverse Voltage ( $t \leq 1.0\text{ms}$ )	$V_R$	5.0	V
Power Dissipation	$P_{DISS}$	4.0	W
Operating Temperature Range	$T_J$	-55 to +125	$^\circ\text{C}$
Storage Temperature Range	$T_S$	-65 to +150	
Lead Temperature	$T_L$	300	
Weight		2.5 (Typ)	g

For notes, please refer to page 2

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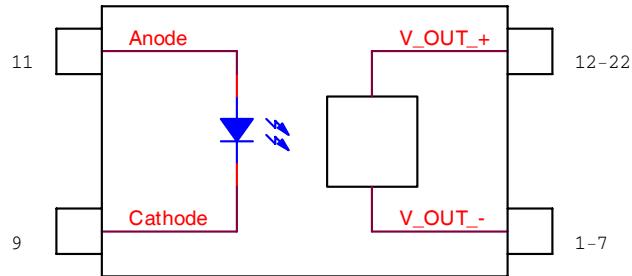
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**Electrical Characteristics @  $-55^{\circ}\text{C} \leq T_{\text{C}} \leq +125^{\circ}\text{C}$  (Unless Otherwise Specified)**

Parameter	Group A Subgroups	Test Conditions	Symbol	Min.	Typ.	Max.	Units
Output On-Resistance	1	$I_F = 10\text{mA}$ , $I_O = 4.0\text{A}$	$R_{\text{DS(ON)}}$	--	0.012	0.020	$\Omega$
	2			--	0.018	0.040	
Output Leakage Current	1	$I_F = 0$ , $V_{\text{OUT}} = 100\text{V}$	$I_O$	--	--	10	$\mu\text{A}$
	2			--	--	25	
Input Forward Voltage	1, 2, 3	$I_F = 10\text{mA}$	$V_F$	1.0	--	1.85	$\text{V}$
Input-to-Output Leakage Current	1	$V_{\text{I-O}} = 1000\text{Vdc}$ , dwell = 5s	$I_{\text{L-O}}$	--	--	1.0	$\mu\text{A}$
Pin-to-Case Leakage Current			$I_{\text{CASE}}$	--	--	1.0	
Turn-On Time ②③④	9, 10, 11	$I_F = 0$ to $10\text{mA}$ , $V_{\text{Bus}} = 28\text{V}$ , $I_O = 2.5\text{A}$ , Duty Cycle $\leq 1.0\%$	$t_{\text{on}}$	--	--	8.0	$\text{ms}$
Turn-Off Time ②③④	9, 10, 11	$I_F = 0$ to $10\text{mA}$ , $V_{\text{Bus}} = 28\text{V}$ , $I_O = 2.5\text{A}$ , Duty Cycle $\leq 1.0\%$	$t_{\text{off}}$	--	--	0.3	
Output Capacitance ①		$I_F = 0$ , $V = +25\text{V}$ , $f = 1\text{MHz}$ , $T_{\text{C}} = 25^{\circ}\text{C}$	$C_{\text{OSS}}$	--	1600	--	$\text{pF}$
Thermal Resistance ①			$R_{\text{THJC}}$	--	--	5.0	$^{\circ}\text{C/W}$
MTBF		MIL-HDBK-217F, $T_{\text{C}} = 25^{\circ}\text{C}$		6.5	--	--	MHrs

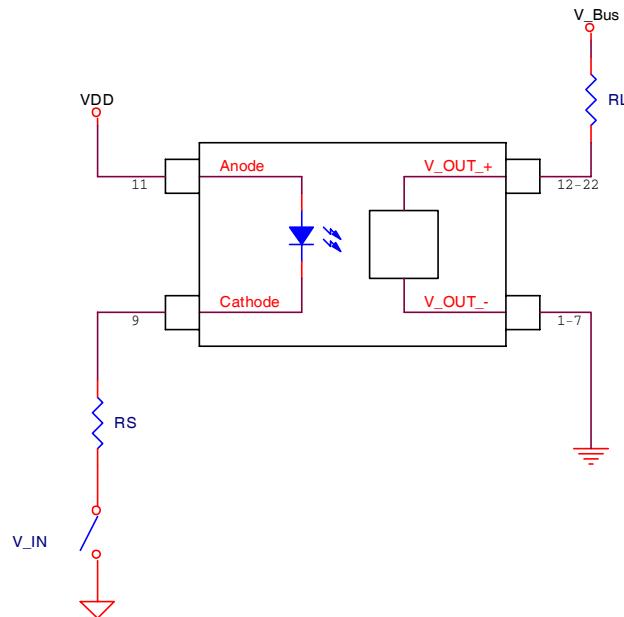
**Notes for Maximum Ratings and Electrical Characteristic Tables**

- ① Specification is guaranteed by design.
- ② Optically coupled Solid State Relays (SSRs) have relatively slow turn-on and turn-off times. Care must be taken to insure that transient currents do not cause a violation of SOA. If transient conditions are present, IR recommends a complete simulation to be performed by the end user to ensure compliance with SOA requirements as specified in the IRHNA67160 data sheet.
- ③ Reference Fig. 2 for Switching Test Circuit and Fig. 3 for Switching Test Wave Form.
- ④ Turn-on Time ( $t_{\text{on}}$ ) includes the turn-on delay and rise time; Turn-off Time ( $t_{\text{off}}$ ) includes the turn-off delay and fall time.
- ⑤ While the SSR design meets the design requirements specified in MIL-PRF-38534, the end user is responsible for product derating, as applicable for the application.

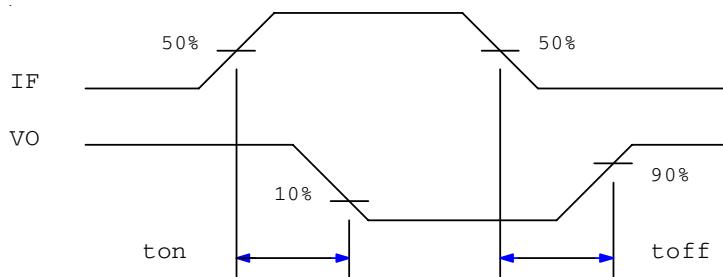


Pins 8, 10, and 17 are no connects.

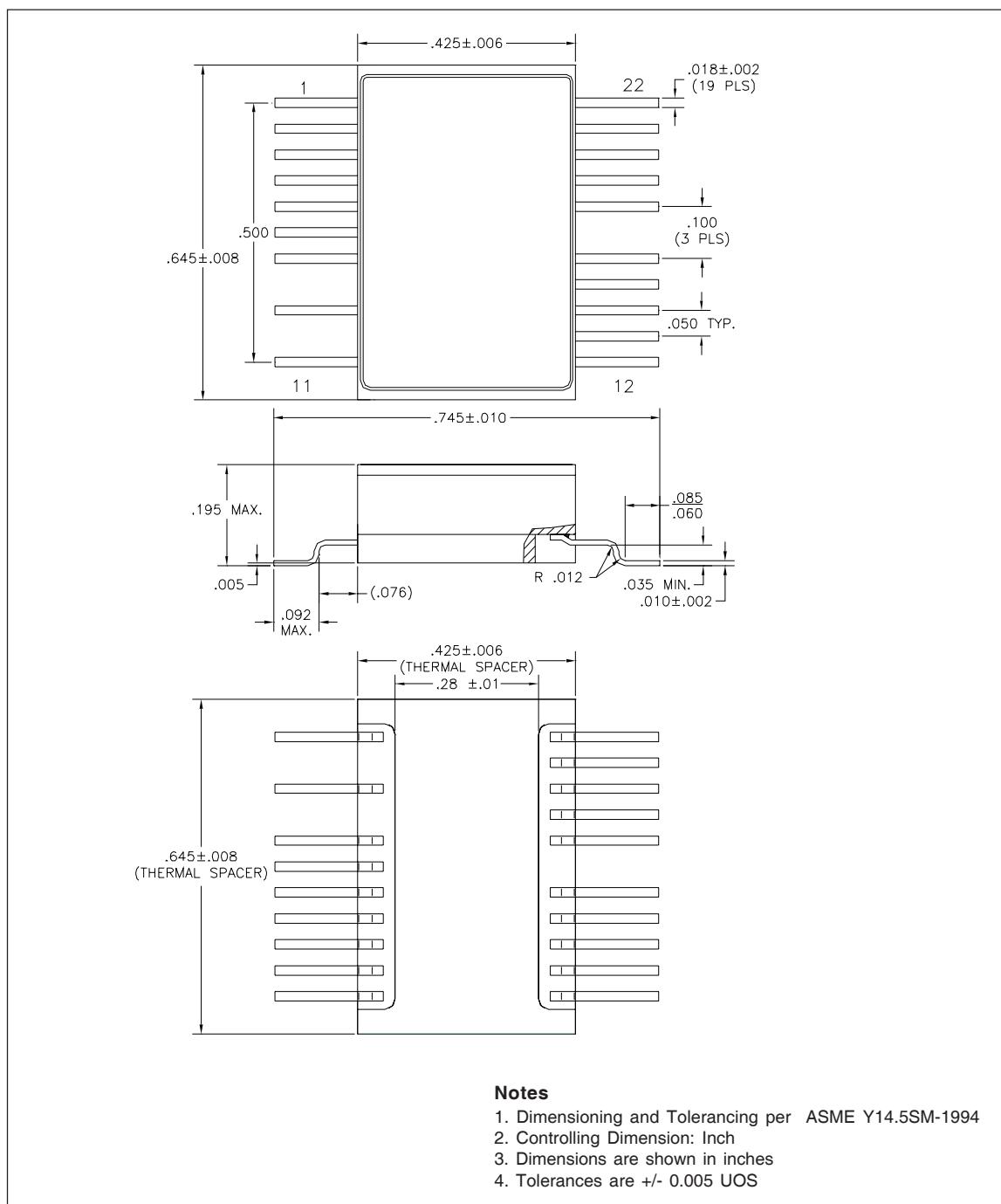
**Fig 1:** Block Diagram



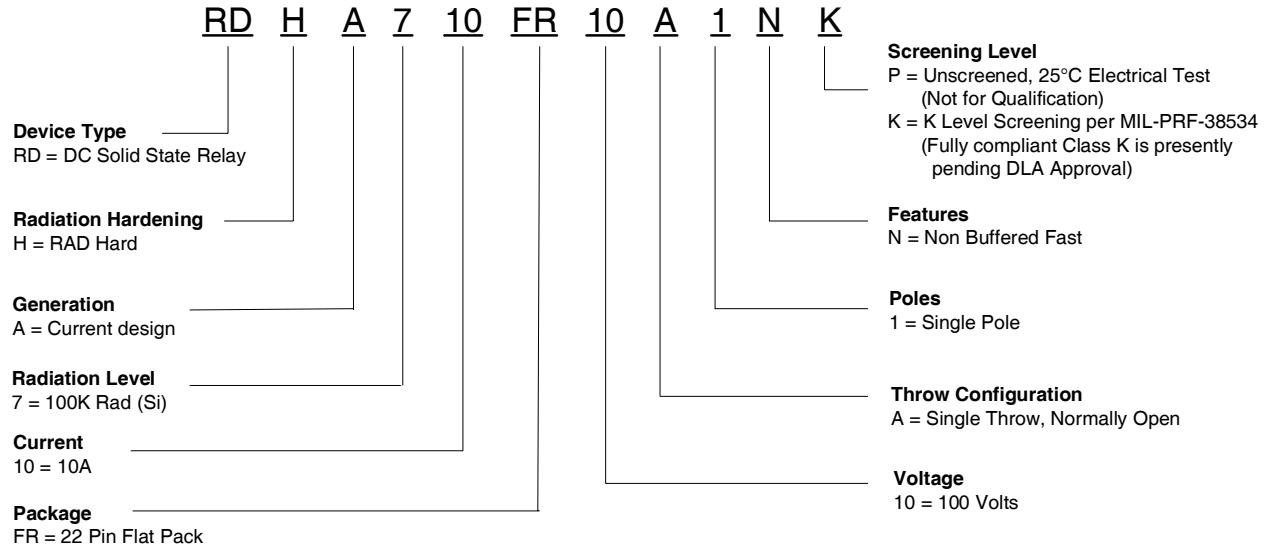
**Fig 2:** Switching Test Circuit



**Fig 3:** Switching Test Waveform

**Case Outline and Dimensions - Package - 22 Pin Flat Pack**

**Part Numbering Nomenclature**



International  
 Rectifier

**IR WORLD HEADQUARTERS:** 233 Kansas St., El Segundo, California 90245, USA Tel: (310) 252-7105

**IR LEOMINSTER :** 205 Crawford St., Leominster, Massachusetts 01453, USA Tel: (978) 534-5776

TAC Fax: (310) 252-7903

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*Data and specifications subject to change without notice. 05/2012*