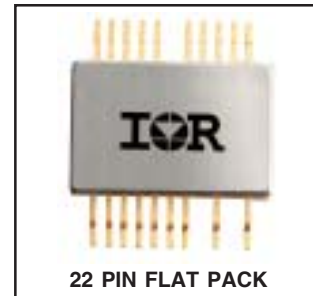


**Radiation Hardended, 100V,  
 Single 10A, Solid State Relay**

**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 hermetic 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<sub>j</sub> = 25°C (unless otherwise specified)**

Parameter	Symbol	Value	Units
Output Withstand Voltage	V <sub>O (OFF)</sub>	100	V
Output Current <sup>Ⓢ</sup>	I <sub>O</sub>	10	A
Peak Output Current <sup>Ⓢ</sup>	I <sub>O pk</sub>	20	
Input Forward Current	I <sub>F</sub>	40	mA
Peak Input Forward Current (t ≤ 1.0ms)	I <sub>F pk</sub>	100	
Peak Input Reverse Voltage (t ≤ 1.0ms)	V <sub>R</sub>	5.0	V
Power Dissipation	P <sub>DISS</sub>	4.0	W
Operating Temperature Range	T <sub>J</sub>	-55 to +125	°C
Storage Temperature Range	T <sub>S</sub>	-65 to +150	
Lead Temperature	T <sub>L</sub>	300	
Weight		2.5 (Typ)	g

For notes, please refer to page 2

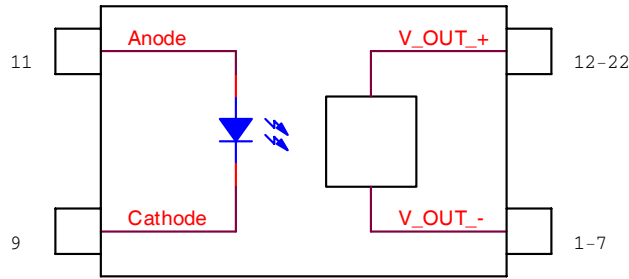
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**Electrical Characteristics @  $-55^{\circ}\text{C} \leq T_C \leq +125^{\circ}\text{C}$  (Unless Otherwise Specified)**

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

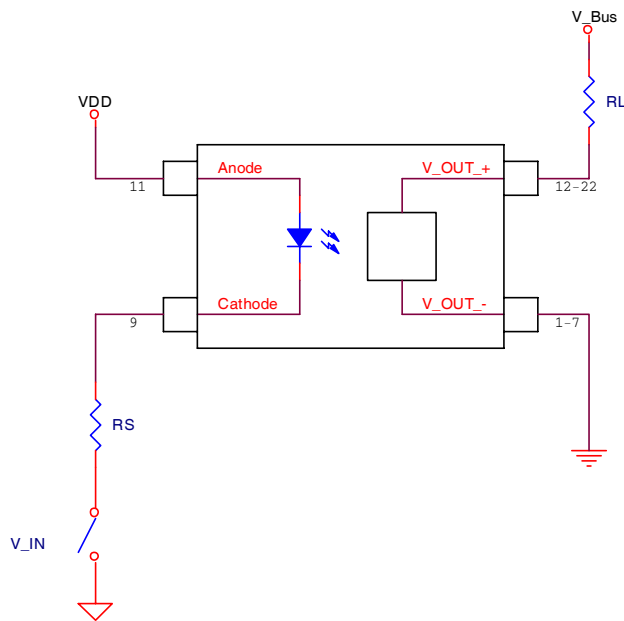
**Notes for Maximum Ratings and Electrical Characteristic Tables**

- 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 ( $t_{on}$ ) includes the turn-on delay and rise time; Turn-off Time ( $t_{off}$ ) 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.

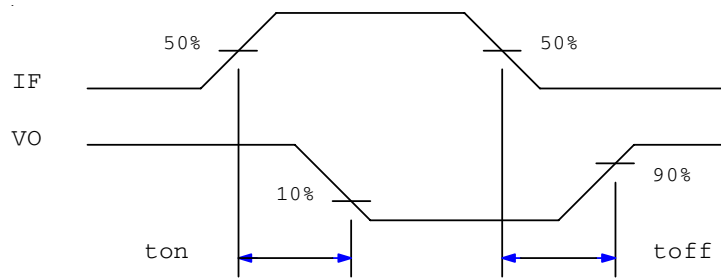


Pins 8, 10, and 17 are no connects.

**Fig 1: Block Diagram**



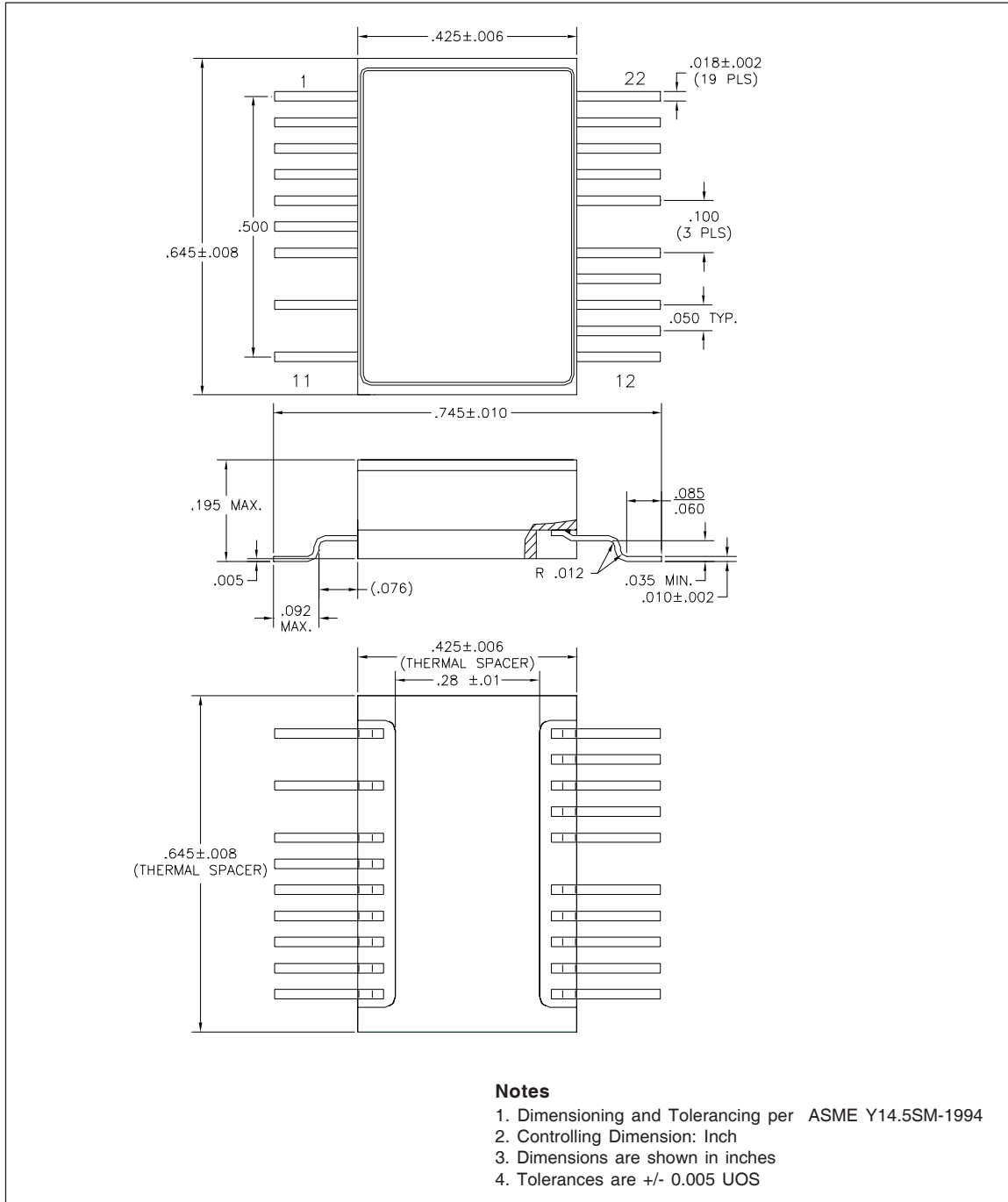
**Fig 2: Switching Test Circuit**



**Fig 3: Switching Test Waveform**

**RDHA710FR10A1NK**

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



**Notes**

1. Dimensioning and Tolerancing per ASME Y14.5SM-1994
2. Controlling Dimension: Inch
3. Dimensions are shown in inches
4. Tolerances are +/- 0.005 UOS

**Part Numbering Nomenclature**

