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DIH-137 Power MOSFET Dual N/C SPST Photovoltaic AC-DC Relay

Features:

- Package Contains Two N/C AC-DC Relays;
- Fast Switching Speeds
- Optically Isolated to 400V DC.
- Low Level Logic Compatibility
- Immune to False Triggering
- Small size, Hermetic 8-pin SIP Package
- Designed to Meet MIL-R28750 and 28V DC System Surge and Spike Requirement of MIL STD-704.

Applications:

- Replacement of Mechanical Relays
- Motor Control & Power Control
- Aircraft Flight Control Systems
- A.T.E (Automatic Test Equipment)
- Load Control From Processor I/O Ports
- Power Supply Circuits
- Medical Electronics

Description:

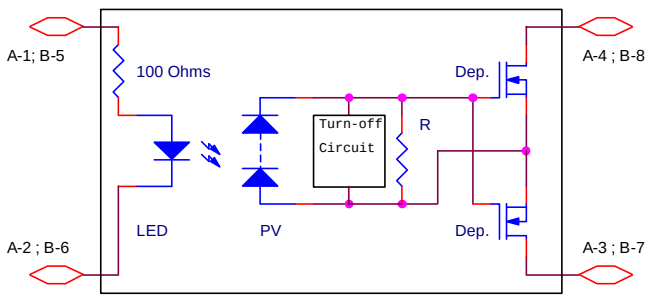
The DIH-137 is a State-of-the-Art Photovoltaic Solid State Relay designed for 28V AC-DC Aircraft power applications where package space-efficiency and high reliability are critical.

Each package contains two independent N/C relays, with separate LED inputs and optically isolated power MOSFET outputs. The Normally Closed (N/C) outputs are able to operate AC or DC.

Each relay, A or B, is capable of carrying 150mA DC continuous current and 250mA DC peak current. Each LED optically couples to a Photovoltaic (PV) IC chip which responds by generating a voltage. This voltage is internally connected to the Gate and Source terminals of the output MOSFETs, thus controlling their current. The DIH-137 is also available screened to military specifications, as required.

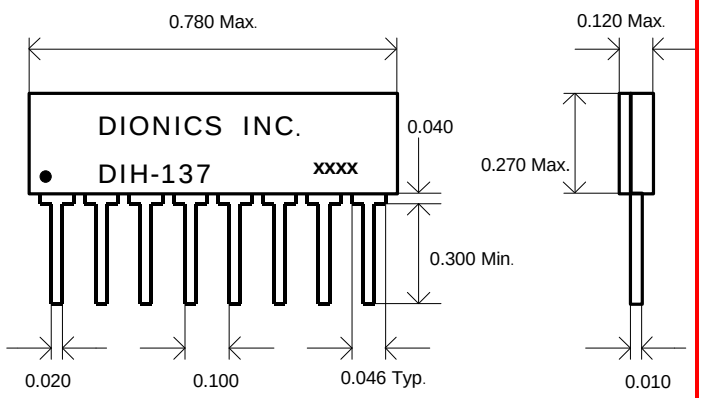
Pin Designations			
Relay A		***Relay B***	
1	Input +	**5**	Input +
2	Input -	**6**	Input -
3	Output	**7**	Output
4	Output	**8**	Output

**** DIH-137 Equivalent Circuit***



**** Package Layout:***

Weight 1.5 Grams



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DIH-137: Power MOSFET SPST Photovoltaic AC-DC Relay

Electrical Characteristics (Per Relay @ 25 ^{0} C unless otherwise specified):

- ❖ Relay A: Normally Closed (N/C)
- ❖ Relay B: Normally Closed (N/C)

❖ **Input Characteristics**

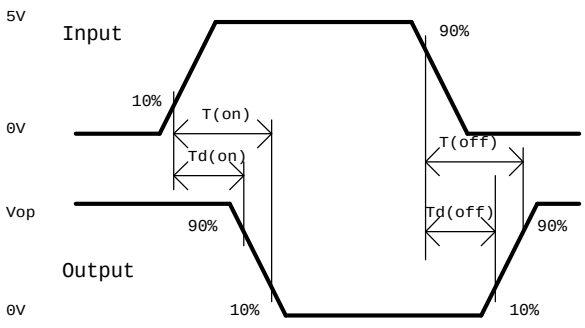
Symbol	*Parameter*	*Min.*	*Typ.*	*Max.*	*Unit*
$\mathbf{I_{in}}$	Input Current	5.0	15.0	24.0	**mA**
$\mathbf{V_{in}}$	Input Voltage Drop	1.3	—	1.5	**V**
$\mathbf{V_{rev.}}$	Reverse Voltage	—	—	10.0	**V**
$\mathbf{V_{on}}$	On State Voltage	—	—	1.2	**V**
$\mathbf{V_{off}}$	Off State Voltage	4.0	—	—	**V**

❖ **Output Characteristics**

Symbol	*Parameter*	*Typ.*	*Max.*	*Unit*	*Condition*
$\mathbf{I_{load}}$	Load Current	—	150 / 250	**mA**	Continuous / Peak
$\mathbf{R_{on}}$	On Resistance	—	18	W	I_{in}=18 (mA); V_{op}=80 (V)
	-40 ^{0}C ≤ T_c ≤ 85 ^{0}C	—	28	W	I_{in}=18 (mA); V_{op}=80 (V)
$\mathbf{R_{iso}}$	Input/Output Resistance	10^8	—	W	
$\mathbf{I_{leak}}$	Leakage Current	—	100	mA	I_{in}=18 (mA); V_{op}=80 (V)
$\mathbf{V_{op}}$	Operating Voltage	30	80	**V**	DC
BV	Breakdown Voltage	—	100	**V**	DC
$\mathbf{T_{on}}$	Turn-On Time	150	300	ms	V_{in}= 4.5V, P.W* = 100µs; V_{op}= 30V
$\mathbf{T_{off}}$	Turn-Off Time	150	300	ms	V_{in}= 4.5V, P.W =100µs; V_{op}= 30V
$\mathbf{V_{iso}}$	Input-Output Isolation	—	400	**V**	DC
P	Maximum Power Dissipation	—	400	**mW**	

PW*: Pulse Width.

❖ ***Timing Diagram***



❖ ***Environmental Ratings***:

- Storage Temperature: -25^{0}C to +125^{0}C
- Constant Acceleration: 5000G
- Hermeticity: + Gross 1x10^{-5} atm cc/sec
  + Fine 5 x 10^{-8} atm cc/s **

** When screened to MIL-Specs.