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## DIH-135 Power MOSFET Dual N/C SPST Photovoltaic DC Relay

### Features:

- Package Contains Two N/C DC Relays;
- Fast Switching Speeds
- Optically Isolated to 400V DC.
- 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.
- Y-Level MIL-Screening Available (**DIH-135Y**)

### 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:

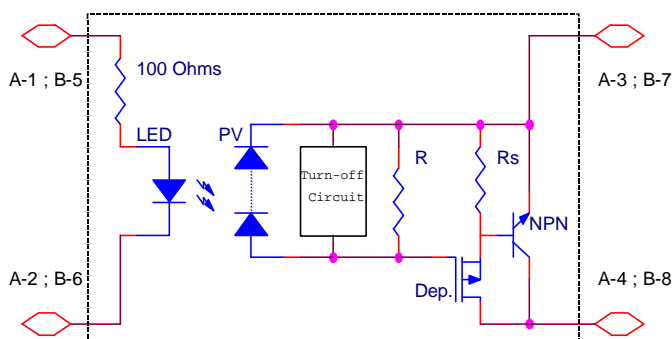
The DIH-135 is a State-of-the-Art Photovoltaic Solid State Relay designed for 28V DC Aircraft power applications where package space-efficiency and high reliability are critical.

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

Each relay, A or B, is capable of carrying 300mA DC continuous current and 500mA 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-135 is also available screened to military specifications, as required.

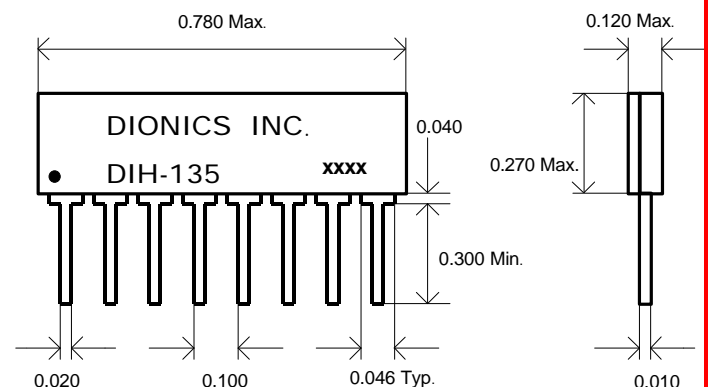
<i>Pin Designations</i>			
<i>Relay A</i>		<i>Relay B</i>	
<b>1</b>	Input +	<b>5</b>	Input +
<b>2</b>	Input -	<b>6</b>	Input -
<b>3</b>	Output -	<b>7</b>	Output -
<b>4</b>	Output +	<b>8</b>	Output +

### \* DIH-135 Equivalent Circuit



### \* Package Layout:

Weight 1.5 Grams



## DIH-135: Power MOSFET Dual SPST Photovoltaic DC Relay

**Electrical Characteristics** (Per Relay @ 25 °C unless otherwise specified):

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

### ❖ Input Characteristics

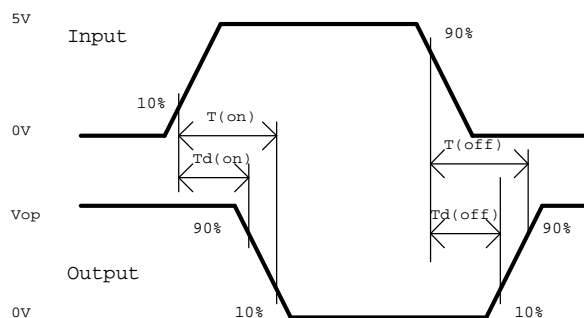
Symbol	Parameter	Min.	Typ.	Max.	Unit
$I_{in}$	Input Current	15.0	20.0	25.0	mA
$V_{in}$	Input Voltage Drop	1.2	—	1.5	V
$V_{rev.}$	Reverse Voltage	—	—	10.0	V
$V_{on}$	On State Voltage	1.2	—	—	V
$V_{off}$	Off State Voltage	—	3.0	4.0	V

### ❖ Output Characteristics

Symbol	Parameter	Typ.	Max.	Unit	Condition
$I_{load}$	Load Current	—	300 / 500	mA	Continuous / Peak
$R_{on}$	On Resistance @ $T_c = 85^\circ\text{C}$	—	5	W	$I_{in}=25\text{ (mA)}; I_{load} = 100\text{ (mA)}$
		—	7	W	$I_{in}=25\text{ (mA)}; I_{load} = 100\text{ (mA)}$
$R_{iso}$	Input/Output Resistance	$10^8$	—	W	
$I_{leak}$	Leakage Current	—	100	mA	$I_{in}=25\text{ (mA)}; V_{op}=80\text{ (V)}$
$V_{op}$	Operating Voltage	30	80	V	DC
$BV$	Breakdown Voltage	—	100	V	DC
$T_{on}$	Turn-On Time	150	300	ms	$V_{in}=4.5\text{V}, P.W^* = 100\mu\text{s}; V_{op}=30\text{V}$
$T_{off}$	Turn-Off Time	150	300	ms	$V_{in}=4.5\text{V}, P.W = 100\mu\text{s}; V_{op}=30\text{V}$
$V_{iso}$	Input-Output Isolation	—	400	V	DC
$P$	Maximum Power Dissipation	—	400	mW	

PW\*: Pulse Width.

### ❖ Timing Diagram



### ❖ Environmental Ratings:

- Storage Temperature:  $-25^\circ\text{C}$  to  $+125^\circ\text{C}$
- Constant Acceleration: 5000G
- Hermeticity: + Gross  $1 \times 10^{-5}$  atm cc/sec  
+ Fine  $5 \times 10^{-8}$  atm cc/s \*\*

\*\* When screened to MIL-Specs.