SOLID STATE OPTRONICS

M271



1 Form A
Solid State Relay

DESCRIPTION

The M271 is a bi-directional, single-pole, single-throw, normally open multipurpose solid-state relay in a miniature 4-pin small outline package. It is designed to be a cost-effective replacement of reed relays in low voltage applications. The relay consists of an integrated circuit that drives two rugged source-to-source enhancement type DMOS transistors - optically coupled to a light emitting diode. The output MOS transistors are protected with free-wheeling diodes that can handle up to 1.5A of inrush current, making the relay ideal for switching lamps and highly inductive loads.

FEATURES

- Ultra miniature 4-pin small outline package
- Low input control power consumption (3mA TYP)
- 10 ohms maximum on-resistance
- 60V load voltage rating
- 125mA maximum continuous load current
- High input-to-output isolation (1500V MIN)
- Long life/high reliability

APPLICATIONS

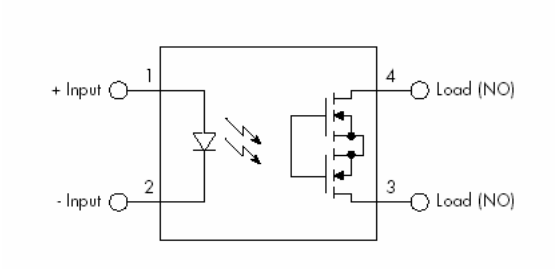
- Reed relay replacement
- Meter reading systems
- Medical equipment
- Battery monitoring
- Multiplexers

OPTIONS/SUFFIXES*

- -TR Tape and Reel

NOTE: Suffixes listed above are not included in marking on device for part number identification.

SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS*

PARAMETER	UNIT	MIN	TYP	MAX
Storage Temperature	°C	-55		125
Operating Temperature	°C	-40		85
Continuous Forward Current	mA			50
Peak Forward Current (1us)	A			1
Reverse Input Control Voltage	V			5
Output Power Dissipation	mW			400

*The values indicated are absolute stress ratings. Functional operation of the device is not implied at these or any conditions in excess of those defined in electrical characteristics section of this document. Exposure to Absolute Ratings may cause permanent damage to the device and may adversely affect reliability.

APPROVALS

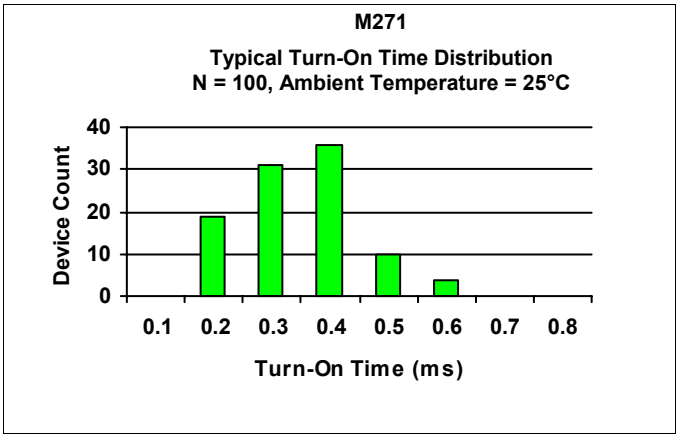
- UL / C-UL Approved (File # E201932)

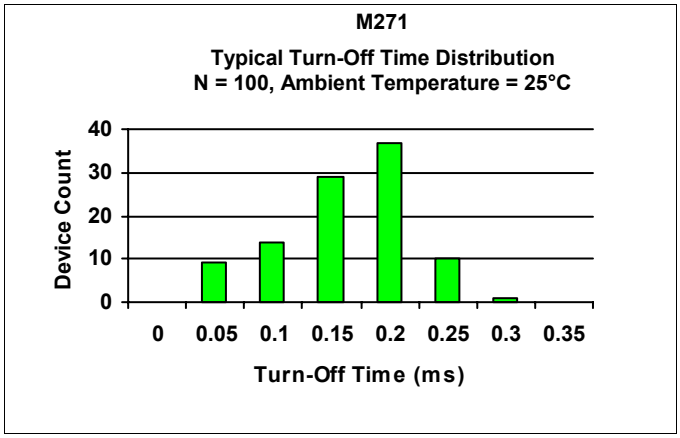
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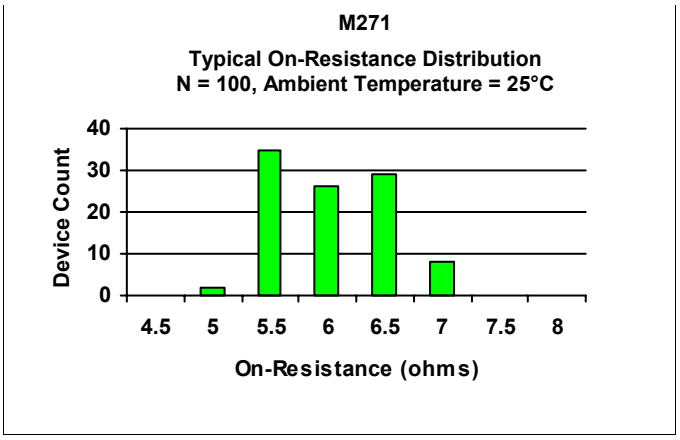
ELECTRICAL CHARACTERISTICS - 25°C

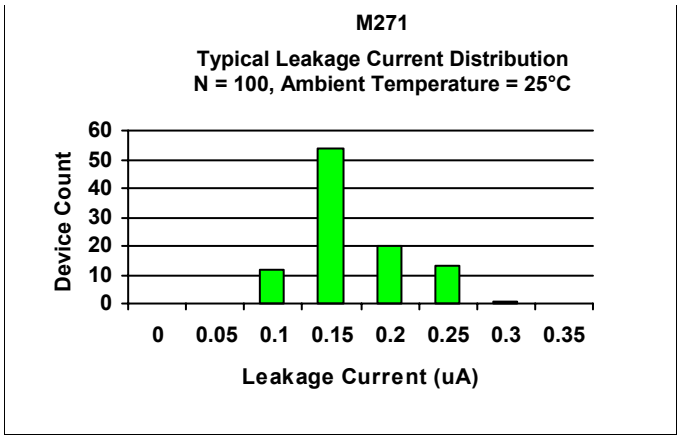
PARAMETER	UNIT	MIN	TYP	MAX	TEST CONDITIONS
INPUT SPECIFICATIONS					
LED Forward Voltage	V		1.2	1.5	If = 10mA
LED Reverse Voltage	V	6	12		Ir = 10uA
Turn-On Current	m A		3	5	Vo = 20V, Io = 100mA, t = 10ms
Turn-Off Current	m A		0.5	5	Vo = 20V, Io = <5uA
OUTPUT SPECIFICATIONS					
Blocking Voltage	V	60			Io = 1uA
Continuous Load Current	m A			125	If = 5mA
On-Resistance	Ω		7	10	Io = 100mA
Leakage Current	μ A		0.2	1	Vo = 60V
Output Capacitance	p F		25	50	Vo = 25V, f = 1.0MHz
Offset Voltage	m V			0.2	If = 5mA
COUPLED SPECIFICATIONS					
Isolation Voltage	V	1500			T = 1 minute
Turn-On Time	m s		0.5	2	If = 10mA, Io = 100mA, Vo = 20V
Turn-Off Time	m s		0.2	2	If = 10mA, Io = 100mA, Vo = 20V
Isolation Resistance	G Ω	100			
Coupled Capacitance	p F		3		
Contact Transient Ratio	V / μ s	2000	7000		dV = 50V

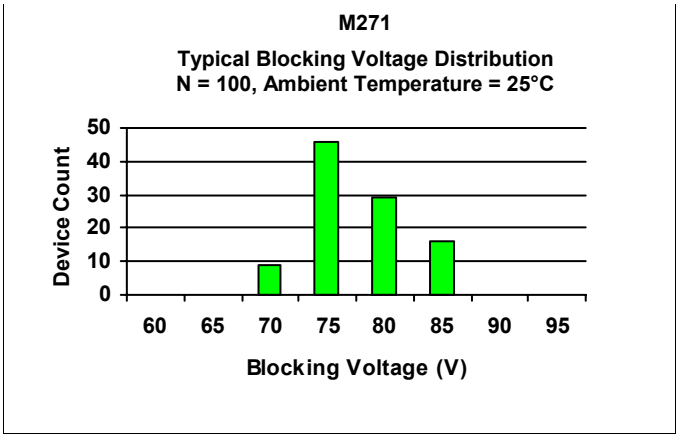
PERFORMANCE DATA

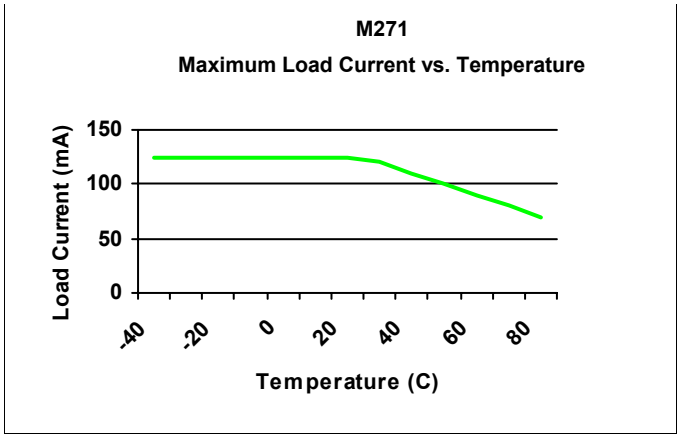






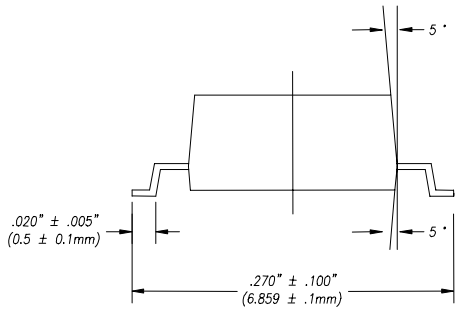




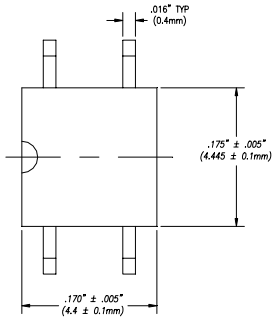


MECHANICAL DIMENSIONS

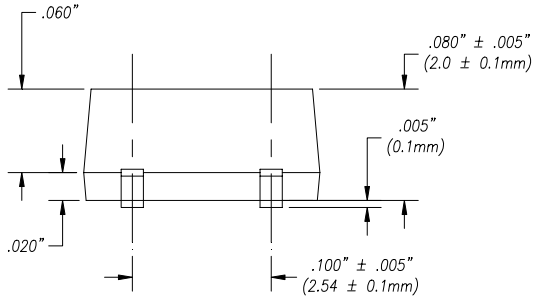
4 PIN SMALL OUTLINE PACKAGE



END VIEW



TOP VIEW



BACK VIEW

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