



Parameter	Rating	Units
Blocking Voltage	250	V <sub>P</sub>
Load Current	50	mA
Max On-resistance	100	Ω

### Features

- 100% Solid State
- Small 6-Pin Package
- Low Drive Power Requirements (TTL/CMOS Compatible)
- Arc-Free With No Snubbing Circuits
- 3750V<sub>rms</sub> Input/Output Isolation
- FCC Compatible
- VDE Compatible
- No EMI/RFI Generation
- Machine Insertable, Wave Solderable
- Tape & Reel Version Available

### Applications

- Telecommunications
  - Telecom Switching
  - Tip/Ring Circuits
  - Modem Switching (Laptop, Notebook, Pocket Size)
  - Hook Switch
  - Dial Pulsing
  - Ground Start
  - Ringing Injection
- Instrumentation
  - Multiplexers
  - Data Acquisition
  - Electronic Switching
  - I/O Subsystems
  - Meters (Watt-Hour, Water, Gas)
- Medical Equipment - Patient/Equipment Isolation
- Security
- Aerospace
- Industrial Controls

### Description

The OMA160 is a 250V, 50mA, 100Ω, 1-Form-A relay featuring high speed switching capability.

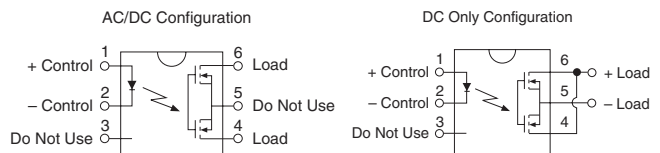
### Approvals

- UL Recognized: File Number E76270
- CSA Certified: File Number LR 43639-10
- EN/IEC 60950-1:2001 Compliant

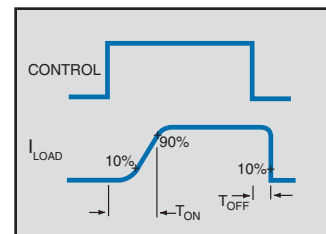
### Ordering Information

Part Number	Description
OMA160	6-Pin DIP (50/Tube)
OMA160S	6-Pin Surface Mount (50/Tube)
OMA160STR	6-Pin Surface Mount (1000/Reel)

### Pin Configuration



### Switching Characteristics of Normally Open (Form A) Devices



## Absolute Maximum Ratings

Parameter	Ratings	Units
Blocking Voltage	250	$V_P$
Reverse Input Voltage	5	V
Input Control Current Peak (10ms)	50	mA
	1	A
Input Power Dissipation <sup>1</sup>	150	mW
Total Power Dissipation <sup>2</sup>	800	mW
Isolation Voltage, Input to Output	3750	$V_{rms}$
Operational Temperature	-40 to +85	°C
Storage Temperature	-40 to +125	°C

<sup>1</sup> Derate Linearly 1.33 mW/°C

<sup>2</sup> Derate Linearly 6.67 mW/°C

Electrical absolute maximum ratings are at 25°C

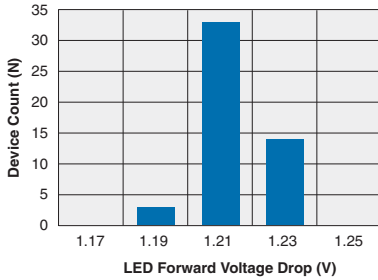
*Absolute Maximum Ratings are stress ratings. Stresses in excess of these ratings can cause permanent damage to the device. Functional operation of the device at conditions beyond those indicated in the operational sections of this data sheet is not implied.*

## Electrical Characteristics

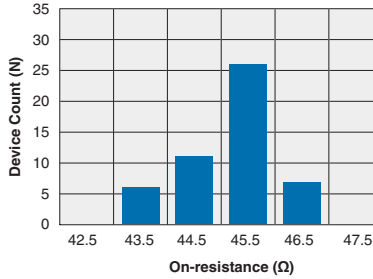
Parameter	Conditions	Symbol	Min	Typ	Max	Units
<b>Output Characteristics @ 25°C</b>						
Load Current, Continuous AC/DC Configuration DC Configuration	-	$I_L$	-	-	50	mA
					80	
Peak Load Current	t=10ms	$I_{LPK}$	-	-	100	mA
On-Resistance AC/DC Configuration DC Configuration	$I_L=50mA$	$R_{ON}$	-	50	100	$\Omega$
	$I_L=80mA$			15	30	
Off-State Leakage Current	$V_L=250V$	$I_{LEAK}$	-	-	25	nA
Switching Speeds Turn-On Turn-Off	$I_F=10mA, V_L=10V$	$T_{ON}$	-	-	0.125	ms
		$T_{OFF}$				
Output Capacitance	50V; f=1MHz	$C_{OUT}$	-	5	-	pF
<b>Input Characteristics @ 25°C</b>						
Input Control Current	$I_L=50mA$	$I_F$	-	-	10	mA
Input Dropout Current	-	$I_F$	0.4	-	-	mA
Input Voltage Drop	$I_F=10mA$	$V_F$	0.9	1.2	1.4	V
Reverse Input Current	$V_R=5V$	$I_R$	-	-	10	$\mu A$
<b>Common Characteristics @ 25°C</b>						
Input to Output Capacitance	-	$C_{I/O}$	-	3	-	pF

**PERFORMANCE DATA\***

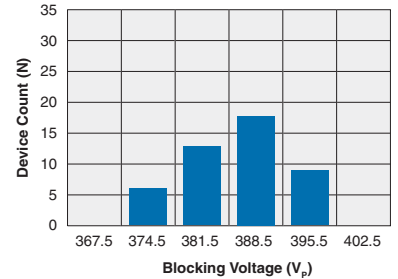
**OMA160**  
Typical LED Forward Voltage Drop  
( $T_A = 25^\circ\text{C}$ ;  $I_F = 10\text{mA}_{\text{DC}}$ )  
N=50



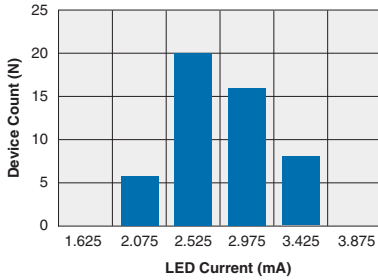
**OMA160**  
Typical On-resistance Distribution  
( $T_A = 25^\circ\text{C}$ ;  $I_L = 50\text{mA}_{\text{DC}}$ ;  $I_F = 10\text{mA}_{\text{DC}}$ )  
N=50



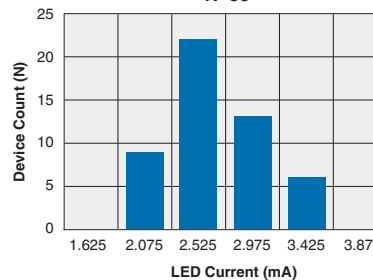
**OMA160**  
Typical Blocking Voltage Distribution  
( $T_A = 25^\circ\text{C}$ )  
N=50



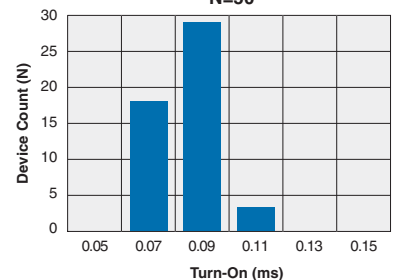
**OMA160**  
Typical  $I_F$  for Switch Operation  
( $T_A = 25^\circ\text{C}$ ;  $I_L = 50\text{mA}_{\text{DC}}$ )  
N=50



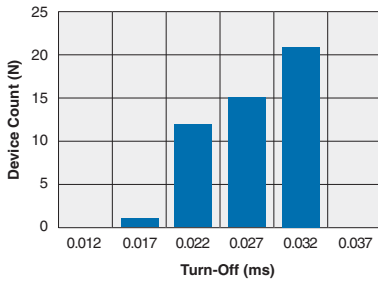
**OMA160**  
Typical  $I_L$  for Switch Dropout  
( $T_A = 25^\circ\text{C}$ ;  $I_L = 50\text{mA}_{\text{DC}}$ )  
N=50



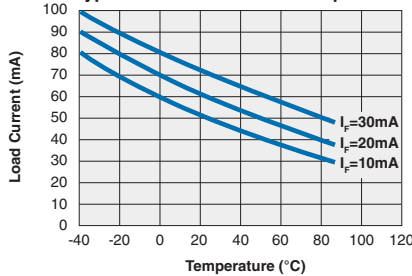
**OMA160**  
Typical Turn-On Time  
( $T_A = 25^\circ\text{C}$ ;  $I_L = 50\text{mA}_{\text{DC}}$ ;  $I_F = 10\text{mA}_{\text{DC}}$ )  
N=50



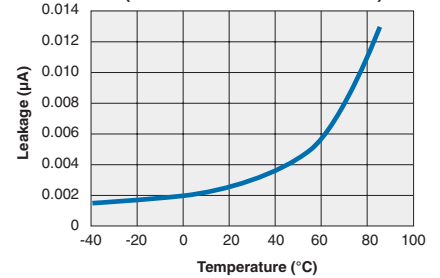
**OMA160**  
Typical Turn-Off Time  
( $T_A = 25^\circ\text{C}$ ;  $I_L = 50\text{mA}_{\text{DC}}$ ;  $I_F = 10\text{mA}_{\text{DC}}$ )  
N=50



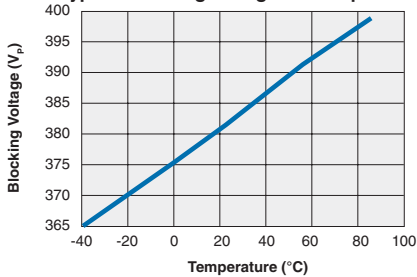
**OMA160**  
Typical Load Current vs. Temperature



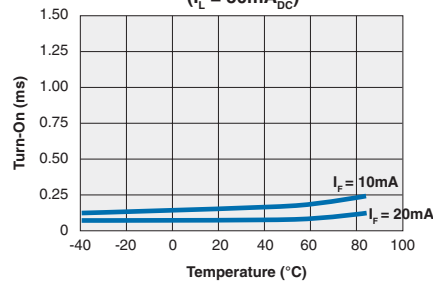
**OMA160**  
Typical Leakage vs. Temperature  
(Measured across Pins 4 & 6)



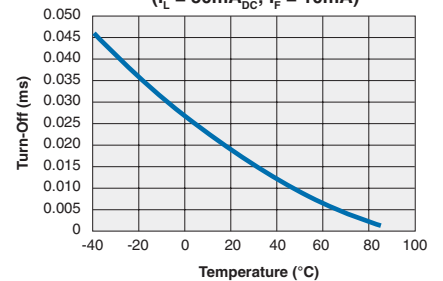
**OMA160**  
Typical Blocking Voltage vs. Temperature



**OMA160**  
Typical Turn-On vs. Temperature  
( $I_L = 50\text{mA}_{\text{DC}}$ )

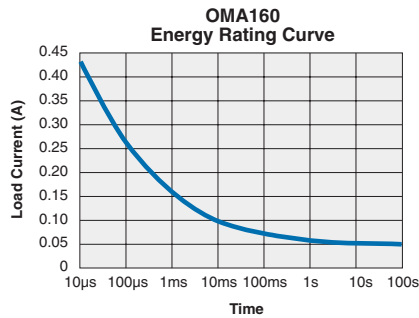
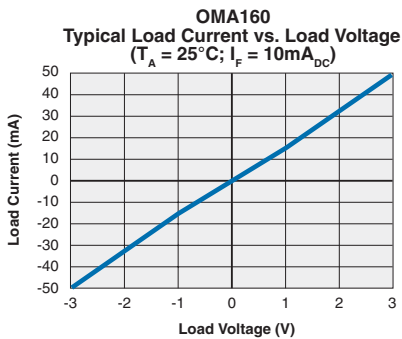
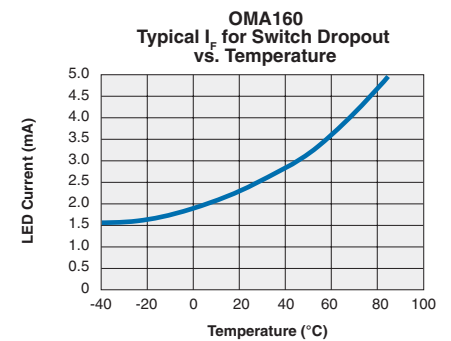
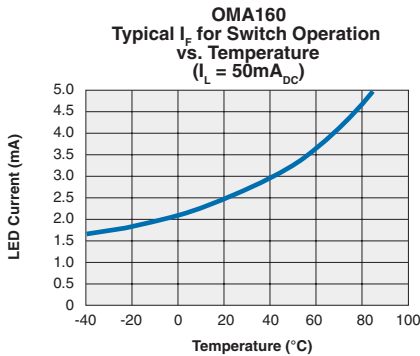
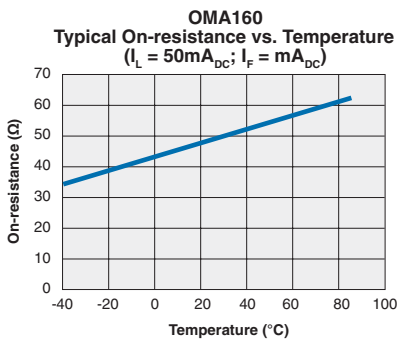
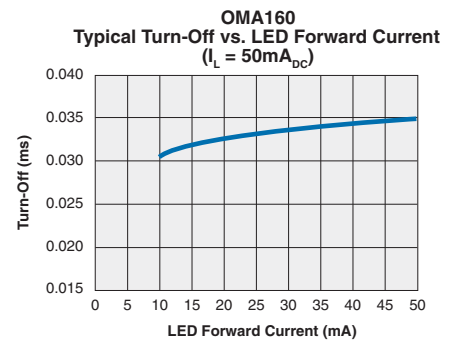
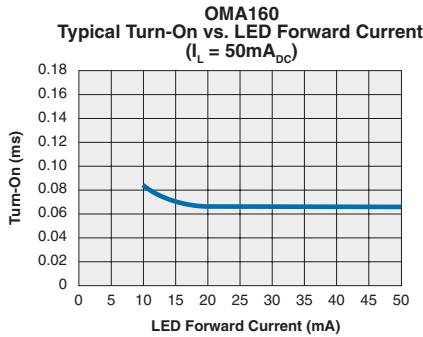
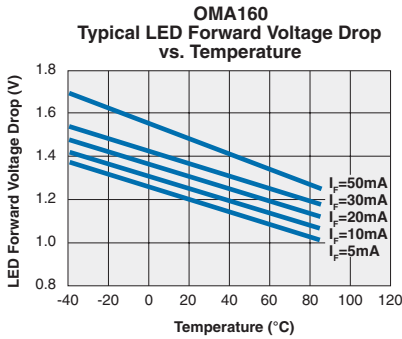


**OMA160**  
Typical Turn-Off vs. Temperature  
( $I_L = 50\text{mA}_{\text{DC}}$ ;  $I_F = 10\text{mA}$ )



\*The Performance data shown in the graphs above is typical of device performance. For guaranteed parameters not indicated in the written specifications, please contact our application department.

PERFORMANCE DATA\*



\*The Performance data shown in the graphs above is typical of device performance. For guaranteed parameters not indicated in the written specifications, please contact our application department.

**Manufacturing Information**

**Soldering**

For proper assembly, the component must be processed in accordance with the current revision of IPC/JEDEC standard J-STD-020. Failure to follow the recommended guidelines may cause permanent damage to the device resulting in impaired performance and/or a reduced lifetime expectancy.

Recommended soldering processes are limited to 260°C component body temperature for 10 seconds.

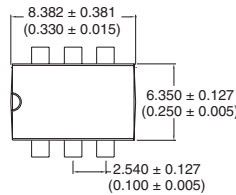
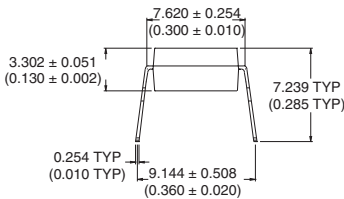
**Washing**

Clare does not recommend ultrasonic cleaning or the use of chlorinated solvents.

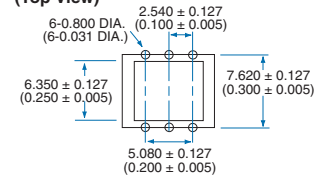


**MECHANICAL DIMENSIONS**

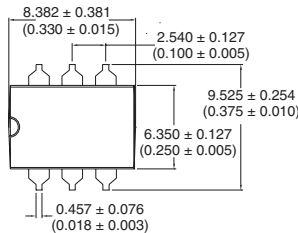
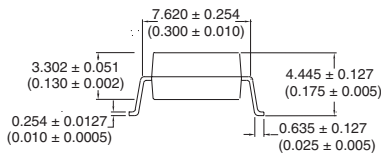
**6-Pin DIP Through Hole (Standard)**



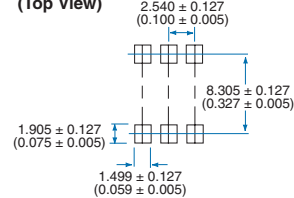
**PC Board Pattern (Top View)**



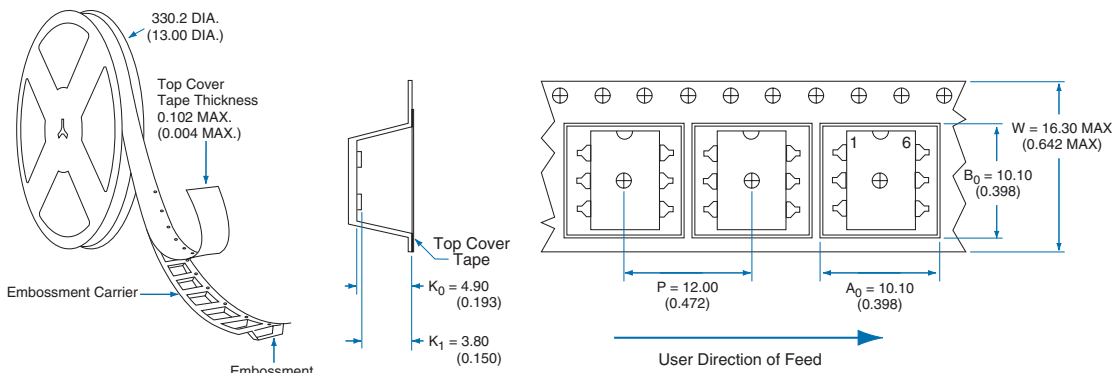
**6-Pin Surface Mount ("S" Suffix)**



**PC Board Pattern (Top View)**



**Tape and Reel Packaging for Surface Mount Package**



Dimensions:  
mm  
(inches)

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