



Parameter	Rating	Units
Blocking Voltage	250	V _P
Load Current	1	A _{DC}
On-Resistance	0.75	Ω

Features

- Power SIP Package
- Handle Load Currents Up to 1A_{DC}
- High Reliability
- No Moving Parts
- Low Drive Power Requirements (TTL/CMOS Compatible)
- Arc-Free With No Snubbing Circuits
- 2500V_{rms} Input/Output Isolation
- No EMI/RFI Generation
- Machine Insertable, Wave Solderable

Applications

- Industrial Controls
- Motor Control
- Robotics
- Medical Equipment—Patient/Equipment Isolation
- Instrumentation
 - Multiplexers
 - Data Acquisition
 - Electronic Switching
 - I/O Subsystems
 - Meters (Watt-Hour, Water, Gas)
- IC Equipment
- Home Appliances

Description

Clare and IXYS have combined to bring OptoMOS® technology, reliability and compact size to a new family of high power solid state relays. As part of that family, the CPC1726 is a 1-Form-A solid state relay. The CPC1726 employs optically coupled MOSFET technology to provide 2500V_{rms} of input to output isolation. The efficient MOSFET switches and photovoltaic die use Clare's patented OptoMOS architecture while the highly efficient GaAlAs infrared LED provides the optically coupled control. The combination of low on resistance and high load current handling capabilities makes the relay suitable for a variety of high performance switching applications.

Approvals

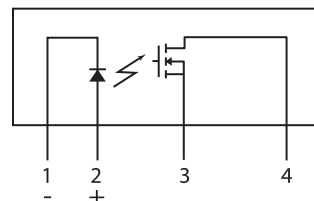
- UL recognized component: File # E69938

Ordering Information

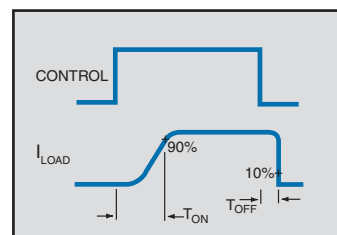
Part #	Description
CPC1726Y	Power SIP Package (25 per tube)

Pin Configuration

CPC1726 Pinout



Switching Characteristics of Normally Open (Form A) Devices



Absolute Maximum Ratings (@ 25° C)

Parameter	Ratings	Units
Blocking Voltage	250	V _P
Reverse Input Voltage	5	V
Input control Current	50	mA
Peak (10ms)	1	A
Input Power Dissipation ¹	150	mW
Total Power Dissipation ²	1600	mW
Isolation voltage Input to Output	2500	V _{rms}
Operational Temperature	-40 to +85	°C
Storage Temperature	-40 to +125	°C

¹ Derate Linearly 3.33 mW / °C

² Derate linearly 16.667 mW / °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
Output Characteristics @ 25°C						
Load Current, Continuous	Free air	I _L	-	-	1	A _{DC}
Peak Load Current	t=10ms	I _{LPK}	-	-	3	A
On-Resistance ¹	I _L =1A	R _{ON}	-	0.64	0.75	Ω
Off-State Leakage Current	V _L =250V _P	I _{LEAK}	-	-	1	μA
Switching Speeds	I _F =10mA, V _L =10V					
Turn-On						
Turn-Off						
Output Capacitance	50V, f=1MHz	C _{OUT}	-	60	-	pF
Input Characteristics @ 25°C						
Input Control Current	I _L =1A	I _F	-	1.8	10	mA
Input Dropout Current	-	I _F	0.6	-	-	mA
Input Voltage Drop	I _F =5mA	V _F	0.9	1.2	1.4	V
Reverse Input Current	V _R =5V	I _R	-	-	10	μA
Input/Output Characteristics @ 25°C						
Capacitance Input/Output	f=1MHz	C _{IO}	-	2	-	pF

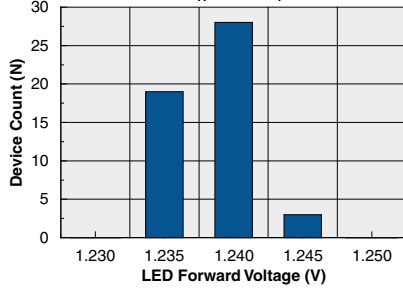
¹ Measurement taken within 1 second of on time.

Thermal Characteristics

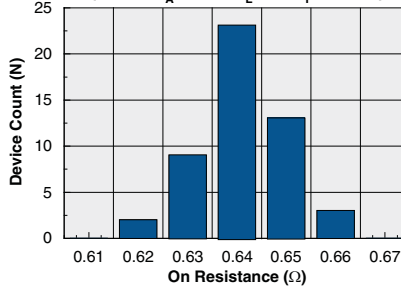
Parameter	Conditions	Symbol	Min	Typ	Max	Units
Thermal Resistance (junction to case)	-	R _{θJC}	-	1.5	-	°C/W

PERFORMANCE DATA*

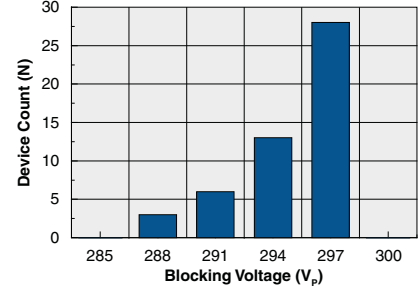
Typical LED Forward Voltage Drop
(N=50, $T_A=25^\circ\text{C}$, $I_F=5\text{mA}$)



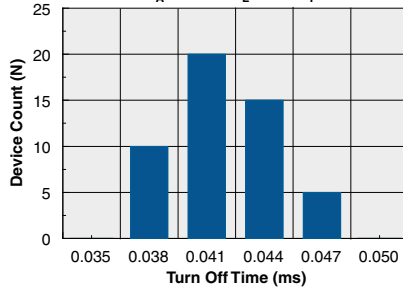
Typical On-Resistance Distribution
(N=50, $T_A=25^\circ\text{C}$, $I_L=1\text{A}$, $I_F=10\text{mA}$)



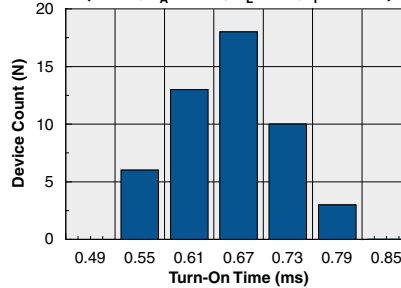
Typical Blocking Voltage Distribution
(N=50, $T_A=25^\circ\text{C}$)



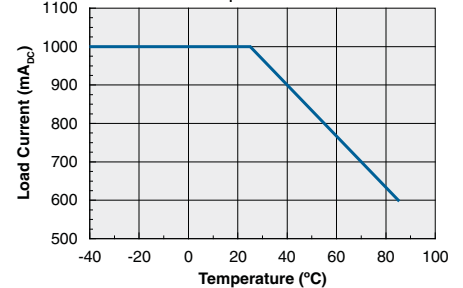
Typical Turn-Off Time Distribution
(N=50, $T_A=25^\circ\text{C}$, $V_L=10\text{V}$, $I_F=10\text{mA}$)



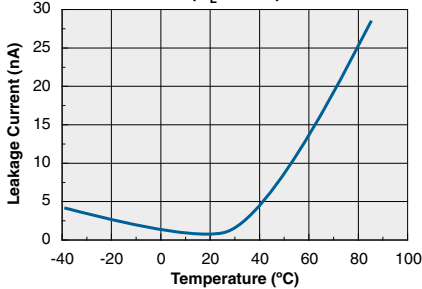
Typical Turn-On Time Distribution
(N=50, $T_A=25^\circ\text{C}$, $V_L=10\text{V}$, $I_F=10\text{mA}$)



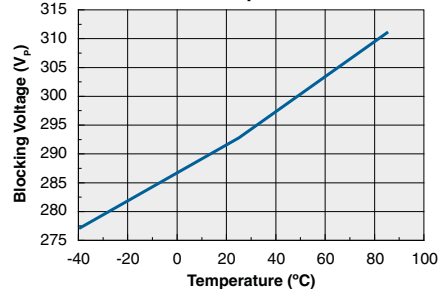
Typical Load Current vs. Temperature
($I_F=10\text{mA}$)



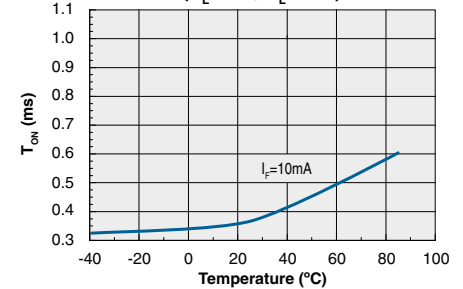
Typical Leakage Current vs. Temperature
Measured Across Pins 3 & 4
($V_L=250\text{V}$)



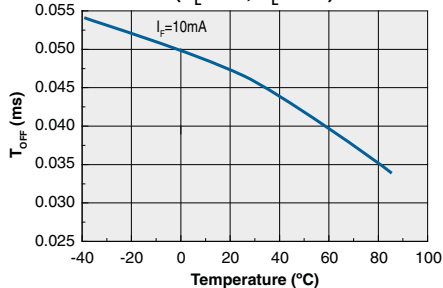
Typical Blocking Voltage vs. Temperature



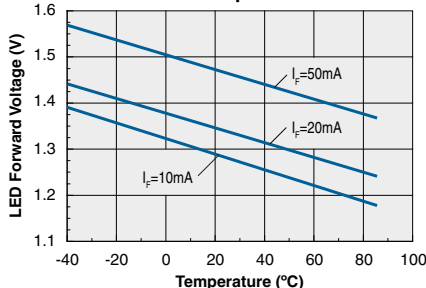
Typical Turn-On Time vs. Temperature
($V_L=10\text{V}$, $R_L=1\text{k}\Omega$)



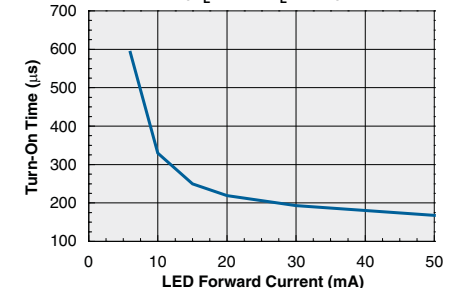
Typical Turn-Off Time vs. Temperature
($V_L=10\text{V}$, $R_L=1\text{k}\Omega$)



Typical LED Forward Voltage vs. Temperature



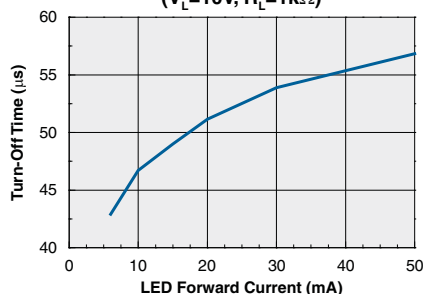
Typical Turn-On Time vs. LED Forward Current
($V_L=10\text{V}$, $R_L=1\text{k}\Omega$)



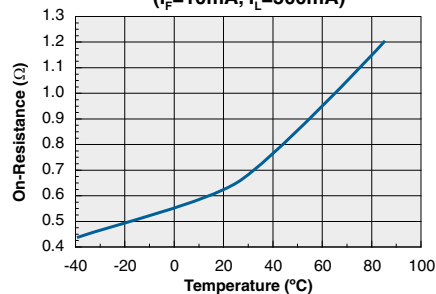
*The Performance data shown in the graphs above is typical of device performance. For guaranteed parameters not indicated in the written specifications, please contact our application department.

PERFORMANCE DATA*

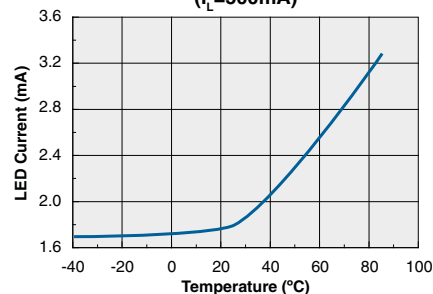
Typical Turn-Off Time
vs. LED Forward Current
($V_L=10V$, $R_L=1k\Omega$)



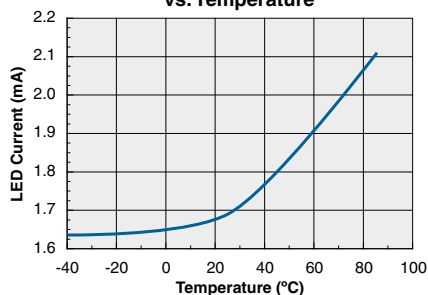
Typical On-Resistance vs. Temperature
($I_F=10mA$, $I_L=500mA$)



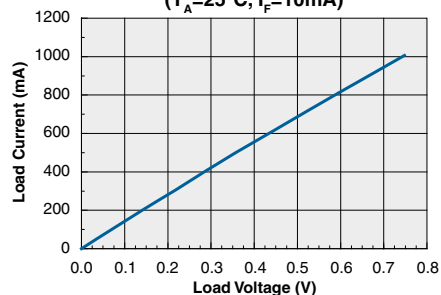
Typical I_F for Switch Operation
vs. Temperature
($I_L=500mA$)



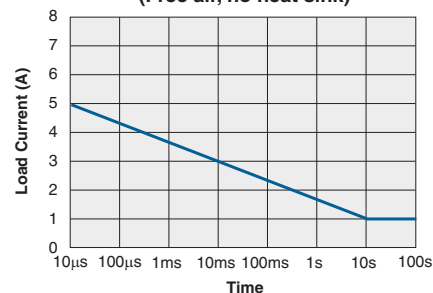
Typical I_F for Switch Dropout
vs. Temperature



Typical Load Current vs. Load Voltage
($T_A=25^{\circ}C$, $I_F=10mA$)



Energy Rating Curve
(Free air, no heat sink)



*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

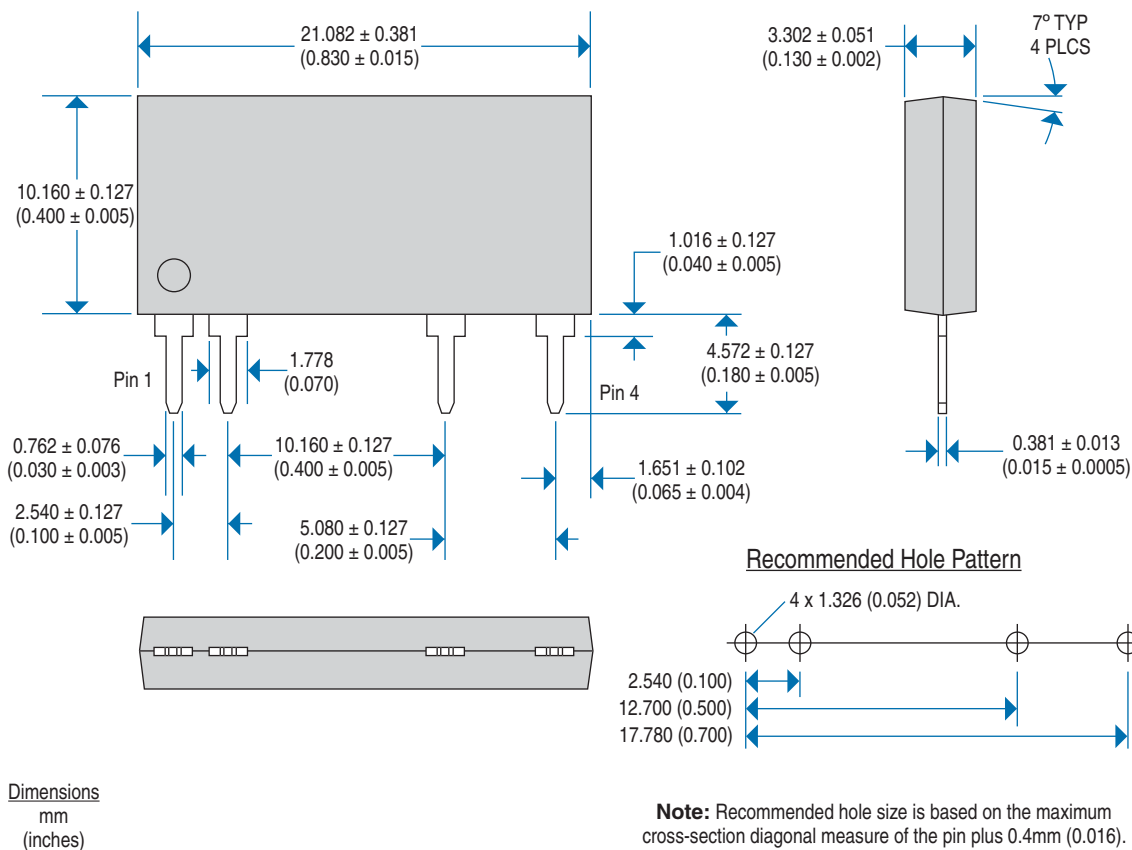
For proper assembly, the component must be processed in accordance with the current revision of IPC/JEDEC standard J-STD-020. Failure to follow the recommended guidelines may cause permanent damage to the device resulting in impaired performance and/or a reduced lifetime expectancy.

Washing

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



MECHANICAL DIMENSIONS



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