



	CPC1988J	Units
Blocking Voltage	1000	$V_p$
Load Current	1.5	$A_{rms}$
On-resistance	2.5	$\Omega$
$R_{\theta JC}$	0.30	$^{\circ}C/W$

### Features

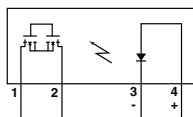
- 100% Solid State
- Compact ISOPLUS-264 Power Package
- Low Thermal Resistance ( $0.30^{\circ}C/W$ )
- Heat Sink Option
- Handle Load Currents Up to  $1.5A_{rms}$  (free air)
- Low Drive Power Requirements (TTL/CMOS Compatible)
- Arc-Free With No Snubbing Circuits
- $2500V_{rms}$  Input/Output Isolation
- 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
  - Energy Meters
- Transportation Equipment
- Aerospace/Defense

### Pin Configuration

CPC1988J Pinout



### 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 this family, the CPC1988J 1-Form-A solid state power relay is rated for up to  $1.5A_{rms}$  of load current.

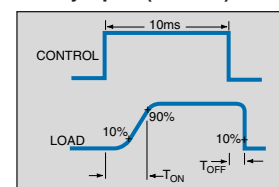
The CPC1988J employs optically coupled MOSFET technology to provide  $2500V_{rms}$  of input to output isolation. The output is constructed with efficient MOSFET switches and photovoltaic die that use Clare's patented OptoMOS architecture while the input, a highly efficient GaAlAs infrared LED provides the optically-coupled control. The combination of low on-resistance and high load current handling capability makes this relay suitable for a variety of high performance switching applications.

The unique ISOPLUS-264 package pioneered by IXYS allows solid state relays to achieve the highest load current and power ratings. This package features a unique IXYS process where the silicon chips are soft soldered onto the Direct Copper bond (DCB) substrate instead of the traditional copper leadframe. The DCB ceramic, the same substrate used in high power modules, not only provides  $2500V_{rms}$  isolation but also very low thermal resistance.

### Ordering Information

Part	Description
CPC1988J	ISOPLUS-264 (25/tube)

Switching Characteristics of Normally Open (Form A) Devices



## Absolute Maximum Ratings (@ 25° C)

Parameter	Ratings	Units
Blocking Voltage	1000	V <sub>P</sub>
Reverse Input Voltage	5	V
Input Control Current	100	mA
Peak (10ms)	1	A
Input Power Dissipation	150	mW
Isolation Voltage Input to Output	2500	V <sub>rms</sub>
Operational Temperature	-40 to +85	°C
Storage Temperature	-40 to +125	°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	Free air	I <sub>L</sub>	-	-	1.5	A <sub>rms</sub>
Peak Load Current	T ≤ 10ms	I <sub>LPK</sub>	-	-	10	A <sub>rms</sub>
On-Resistance <sup>1</sup>	I <sub>L</sub> = 1A, I <sub>F</sub> =10mA	R <sub>ON</sub>	-	-	2.5	Ω
Off-State Leakage Current	V <sub>L</sub> =1000V	I <sub>LEAK</sub>	-	-	1	μA
<b>Switching Speeds</b>						
Turn-On	I <sub>F</sub> =20mA, V <sub>L</sub> =10V	T <sub>ON</sub>	-	-	20	ms
Turn-Off	I <sub>F</sub> =20mA, V <sub>L</sub> =10V	T <sub>OFF</sub>	-	-	5	ms
<b>Input Characteristics @ 25°C</b>						
Input Control Current <sup>2</sup>	I <sub>L</sub> =120mA	I <sub>F</sub>	10	-	-	mA
Input Dropout Current	-	I <sub>F</sub>	0.6	-	-	mA
Input Voltage Drop	I <sub>F</sub> =5mA	V <sub>F</sub>	0.9	1.2	1.4	V
Reverse Input Current	V <sub>R</sub> =5V	I <sub>R</sub>	-	-	10	μA
<b>Common Characteristics @ 25°C</b>						
Capacitance Input to Output	-	C <sub>I/O</sub>	-	1	-	pF

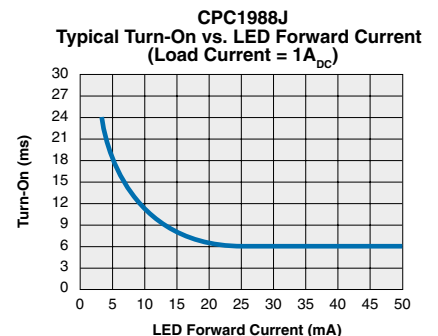
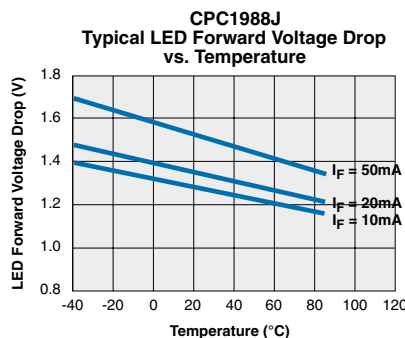
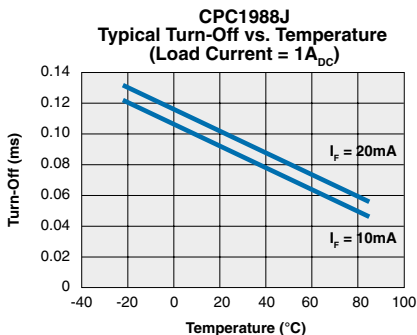
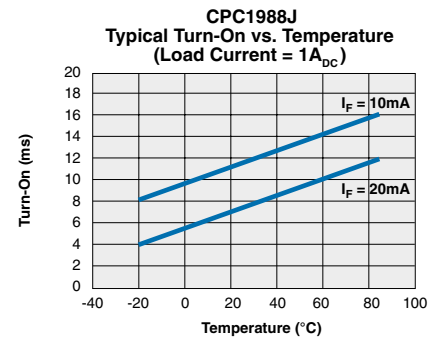
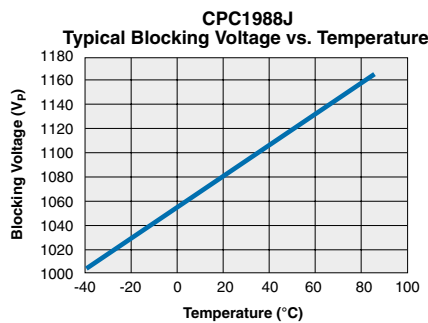
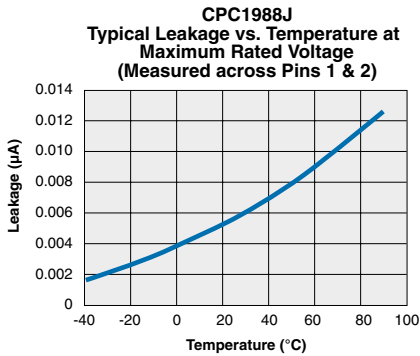
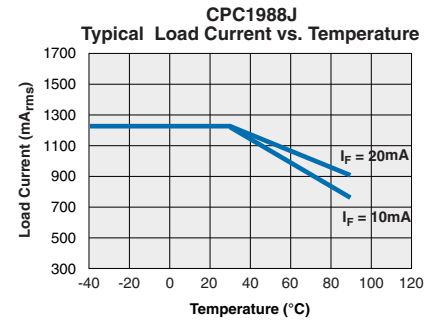
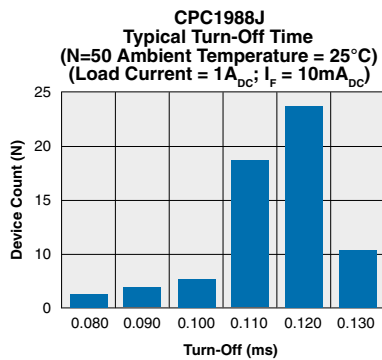
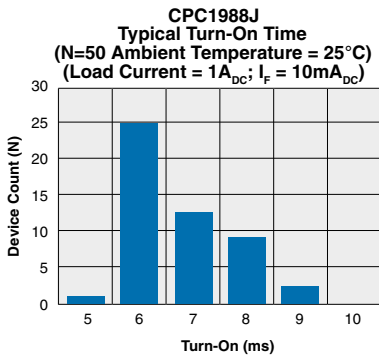
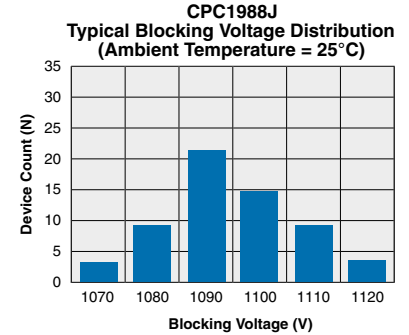
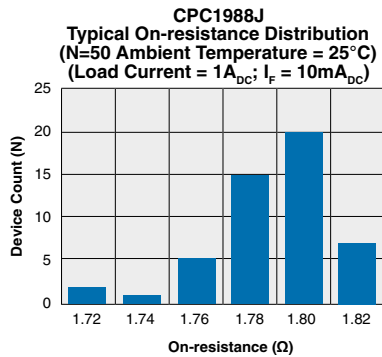
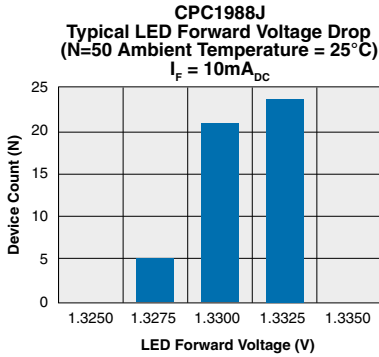
<sup>1</sup> Measurement taken within 1 second of on time.

<sup>2</sup> For applications requiring high temperature operation (greater than 60°C) an LED drive current of 20mA is recommended.

## Thermal Characteristics

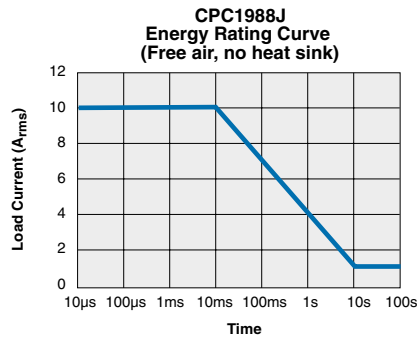
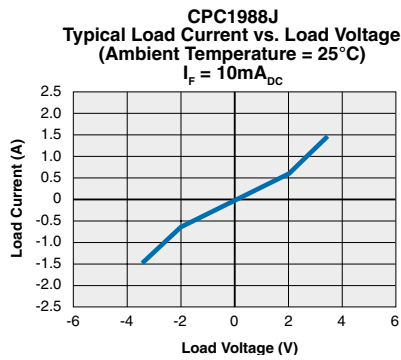
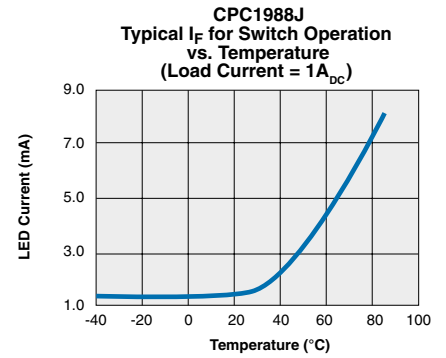
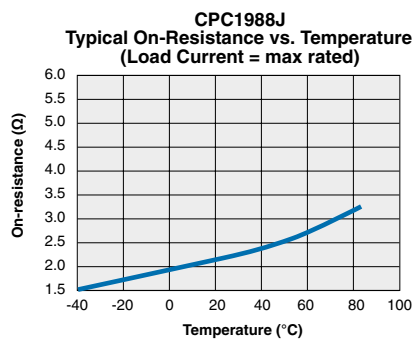
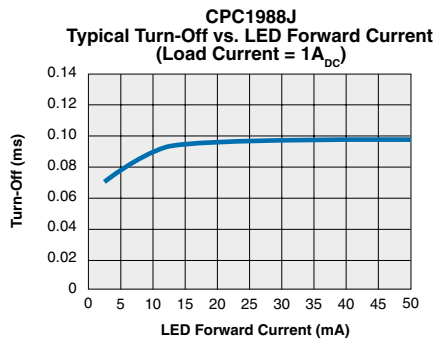
Parameter	Conditions	Symbol	Min	Typ	Max	Units
Thermal Resistance (junction to case)	-	R <sub>θJC</sub>	-	0.30	-	°C/W

**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.

PERFORMANCE DATA\*



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## Manufacturing Information

### Soldering

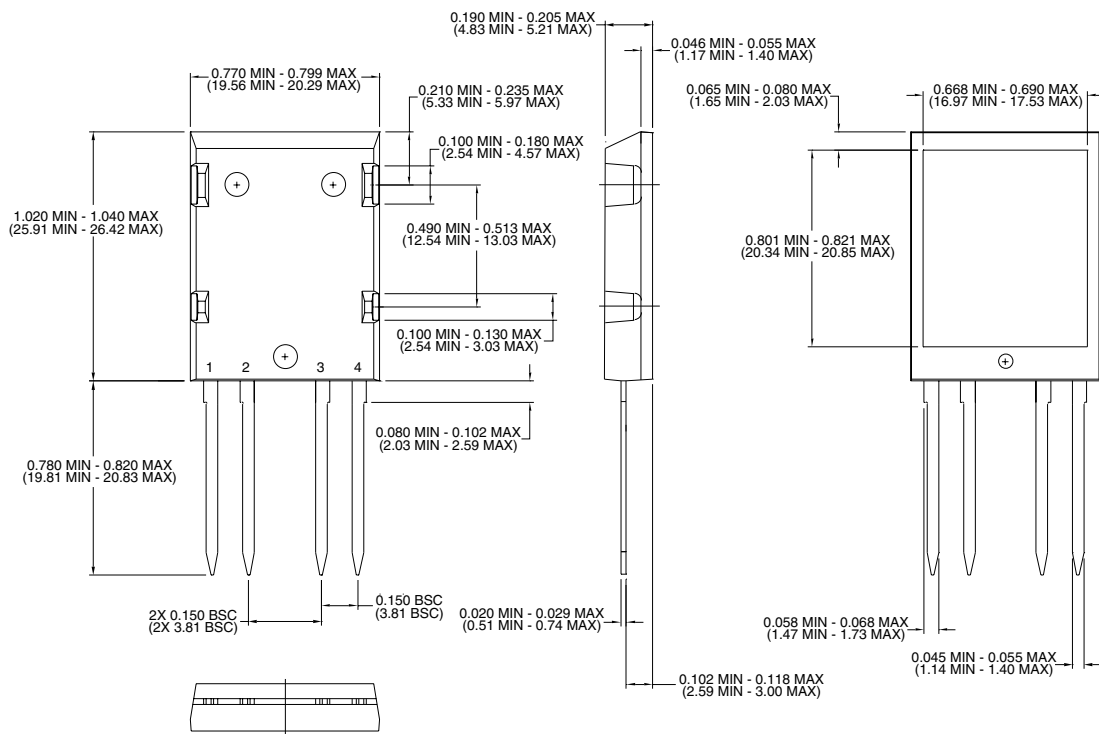
Recommended soldering processes are limited to 245°C component body temperature for 10 seconds.

### Washing

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

## MECHANICAL DIMENSIONS

### ISOPLUS-264



NOTE: Bottom heatsink meets 2500V<sub>rms</sub> isolation to the other pins.

Dimensions  
inches  
(mm)

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