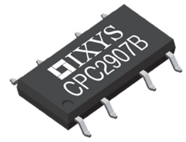
IXYS
INTEGRATED CIRCUITS DIVISION



CPC2907B
Dual 60V Single-Pole Normally Open OptoMOS® Relay

Parameter	Ratings	Units
Blocking Voltage	60	V_P
Load Current	2	A_{rms} / A_{DC}
On-Resistance (max)	0.15	Ω

Features
- Dual Relays
- Low On-resistance: 150mΩ Max
- 2 Amp Load Current; Single-Pole Operation
- 4000V_{rms} Input/Output Isolation
- Low Drive Power Requirements
- High Reliability
- Arc-Free With No Snubbing Circuits
- No EMI/RFI Generation
- 8-Pin SOIC Surface Mount Package
- Flammability Rating UL 94 V-0

Applications
- Security
- Instrumentation
- Multiplexers
- Data Acquisition
- Electronic Switching
- I/O Subsystems
- Medical Equipment-Patient/Equipment Isolation
- Industrial Controls

Description
CPC2907B is a dual, normally open (1-Form-A) Solid State Relay that comprises two independent, optically coupled MOSFET switches. The combination of highly efficient LEDs and photovoltaic die makes possible an input to output isolation of 4000V_{rms}.

The optically coupled output driver, which uses the patented OptoMOS architecture, is controlled by a highly efficient infrared LED.

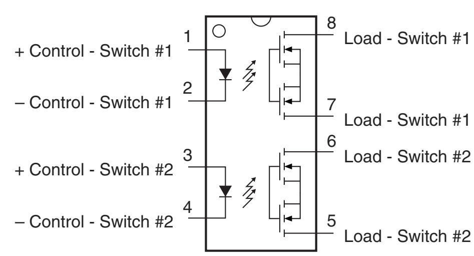
Dual OptoMOS relays provide a more compact design solution than discrete single-pole relays in a variety of applications, saving board space by incorporating both switches in a single 8-pin package.

Approvals
- UL 508 Certified Component: File E69938
- CSA Certified Component: Certificate 1175739
- EN/IEC 60950-1 Certified Component: Certificate available on our website

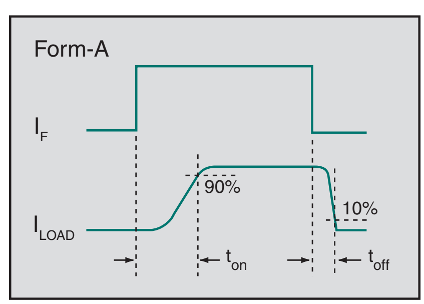
Ordering Information

Part #	Description
CPC2907B	8-Pin Power SOIC (25/Tube)

Pin Configuration



Switching Characteristics of Normally Open (Form A) Devices



Pb RoHS e3

Absolute Maximum Ratings @ 25°C

Parameter	Ratings	Units
Blocking Voltage	60	V_P
Reverse Input Voltage	5	V
Input Control Current	50	mA
Peak (10ms)	1	A
Input Power Dissipation [1]	150	mW
Output Power Dissipation		
Single Pole [2]	1125	mW
Both Poles [3]	1700	mW
Isolation Voltage, Input to Output	4000	V_{rms}
Operational Temperature (T_A)	-40 to +85	°C
Storage Temperature	-40 to +125	°C

[1] Derate linearly 1.33 mW / °C
[2] Derate linearly 11.4 mW / °C
[3] Derate linearly 17.1 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.

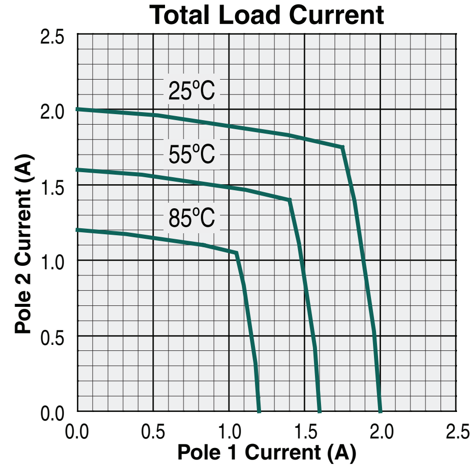
Typical values are characteristic of the device at +25°C, and are the result of engineering evaluations. They are provided for information purposes only, and are not part of the manufacturing testing requirements.

Electrical Characteristics @ 25°C

Parameter	Conditions	Symbol	Min	Typ	Max	Units
Output Characteristics						
Load Current						
Continuous, Single-pole [1]	-	I_L	-	-	2	A_{rms} / A_{DC}
Peak	t =10ms	I_{LPK}	-	-	±10	A_P
On-Resistance [2]	I_F=5mA, I_L=1A	R_{ON}	-	0.10	0.15	Ω
Off-State Leakage Current	V_L=60V_P	I_{LEAK}	-	-	1	µA
Switching Speeds						
Turn-On	I_F=5mA, V_L=10V	t_{on}	-	0.62	2.5	ms
Turn-Off	I_F=5mA, V_L=10V	t_{off}	-	0.09	0.25	ms
Output Capacitance	I_F=0mA, V_L=50V, f=1MHz	C_{OUT}	-	60	-	pF
Input Characteristics						
Input Control Current to Activate [3]	I_L=1A	I_F	-	0.78	5	mA
Input Control Current to Deactivate	-	-	0.4	0.78	-	mA
Input Voltage Drop	I_F=5mA	V_F	0.9	1.2	1.5	V
Reverse Input Current	V_R=5V	I_R	-	-	10	µA
Common Characteristics						
Capacitance, Input to Output	V_{IO}=0V, f=1MHz	C_{IO}	-	3	-	pF

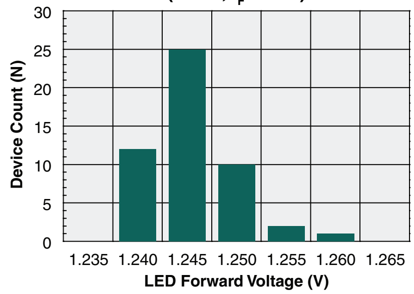
[1] If both poles operate at the same time, the load current must be derated in order not to exceed the package power dissipation value. See Total Load Current chart on this page.
[2] Measurement taken within one (1) second of on-time.
[3] For applications requiring operation at temperatures greater than 60ºC, a minimum LED drive current of 10mA is recommended.

Total Load Current

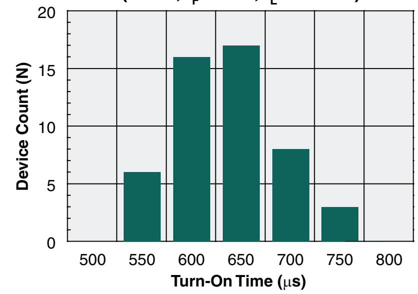


PERFORMANCE DATA*

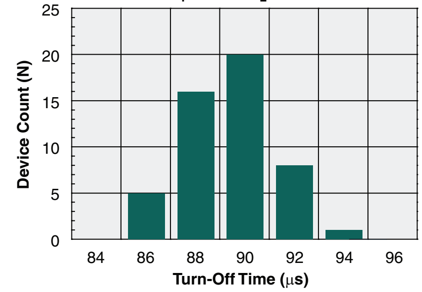
LED Forward Voltage Distribution (N=50, I_F=5mA)



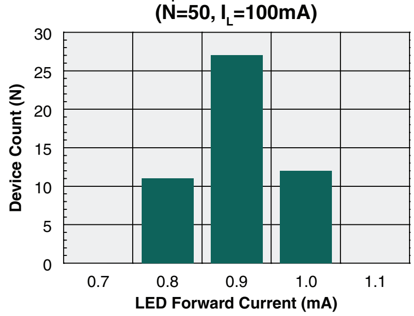
Typical Turn-On Time (N=50, I_F=5mA, I_L=100mA)



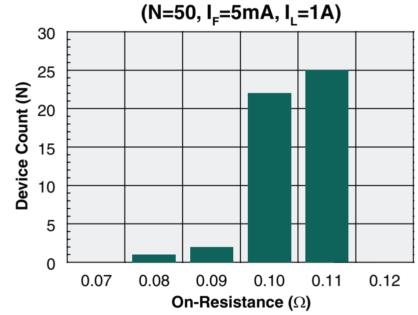
Typical Turn-Off Time (N=50, I_F=5mA, I_L=100mA)



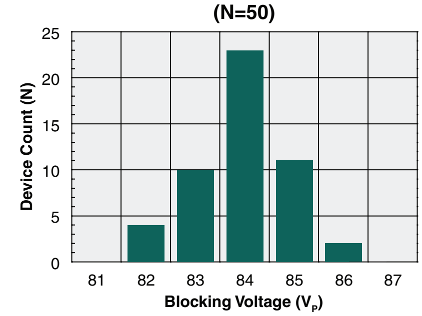
Typical I_F for Switch Operation (N=50, I_L=100mA)



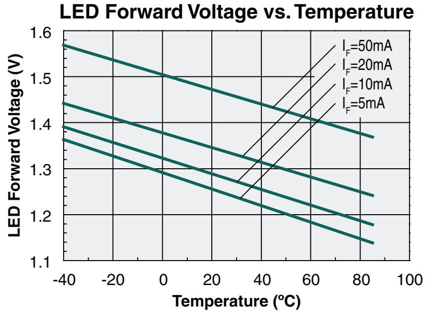
Typical On-Resistance Distribution (N=50, I_F=5mA, I_L=1A)



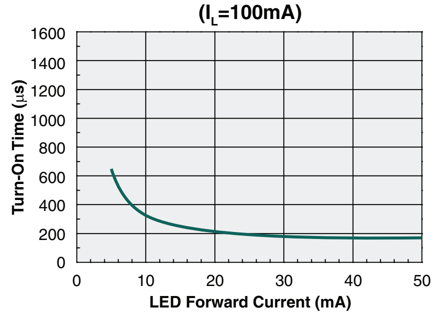
Typical Blocking Voltage Distribution (N=50)



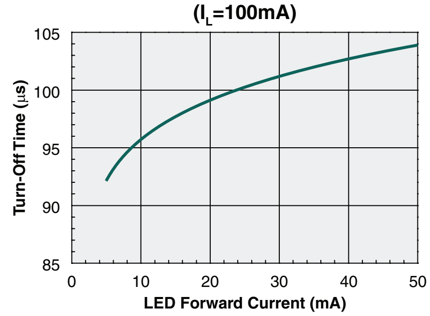
LED Forward Voltage vs. Temperature



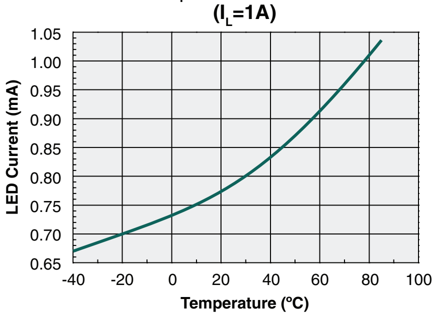
Typical Turn-On Time vs. LED Forward Current (I_L=100mA)



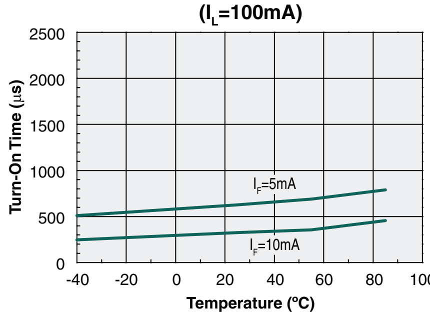
Typical Turn-Off Time vs. LED Forward Current (I_L=100mA)



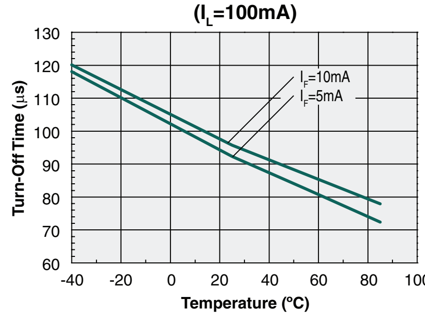
Typical I_F for Switch Operation (I_L=1A)



Typical Turn-On Time vs. Temperature (I_L=100mA)

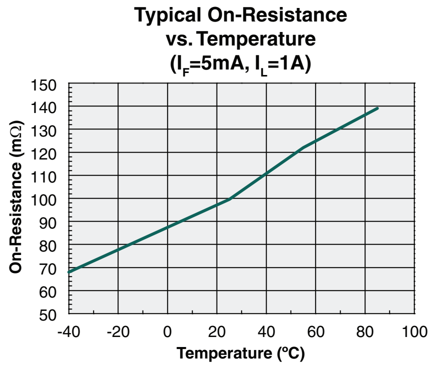


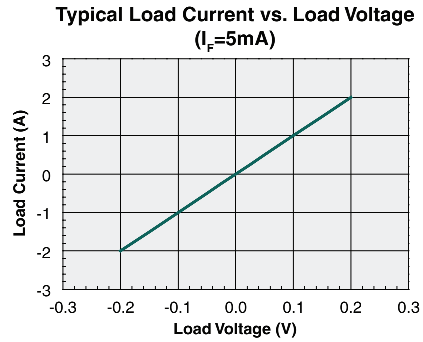
Typical Turn-Off Time vs. Temperature (I_L=100mA)

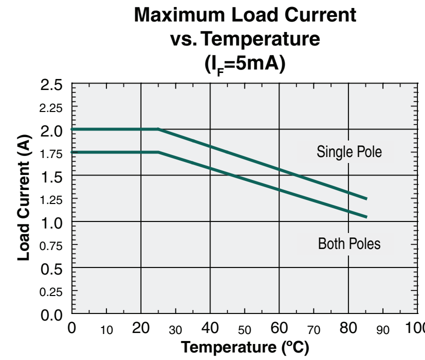


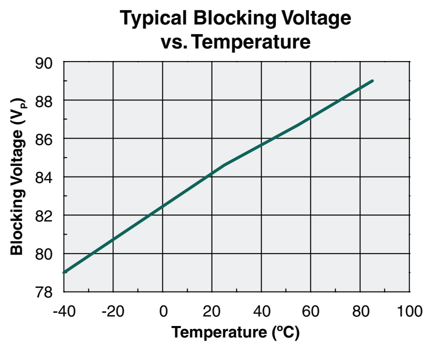
*Unless otherwise noted, data presented in these graphs is typical of device operation at 25ºC.
For guaranteed parameters not indicated in the written specifications, please contact our application department.

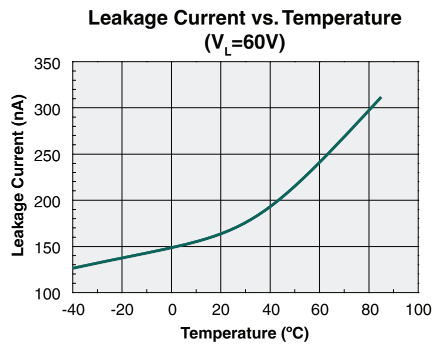
PERFORMANCE DATA*

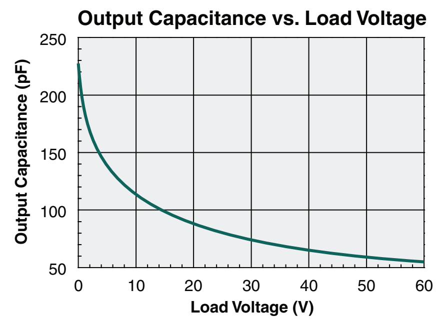












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For guaranteed parameters not indicated in the written specifications, please contact our application department.

Manufacturing Information

Moisture Sensitivity

All plastic encapsulated semiconductor packages are susceptible to moisture ingression. IXYS Integrated Circuits classifies its plastic encapsulated devices for moisture sensitivity according to the latest version of the joint industry standard, **IPC/JEDEC J-STD-020**, in force at the time of product evaluation. We test all of our products to the maximum conditions set forth in the standard, and guarantee proper operation of our devices when handled according to the limitations and information in that standard as well as to any limitations set forth in the information or standards referenced below.

Failure to adhere to the warnings or limitations as established by the listed specifications could result in reduced product performance, reduction of operable life, and/or reduction of overall reliability.

This product carries a Moisture Sensitivity Level (MSL) classification as shown below, and should be handled according to the requirements of the latest version of the joint industry standard **IPC/JEDEC J-STD-033**.

Device	Moisture Sensitivity Level (MSL) Classification
CPC2907B	MSL 1

ESD Sensitivity

This product is **ESD Sensitive**, and should be handled according to the industry standard **JESD-625**.

Soldering Profile

Provided in the table below is the Classification Temperature (T_C) of this product and the maximum dwell time the body temperature of this device may be (T_C - 5)°C or greater. The classification temperature sets the Maximum Body Temperature allowed for this device during lead-free reflow processes. For through-hole devices, and any other processes, the guidelines of **J-STD-020** must be observed.

Device	Classification Temperature (T_c)	Dwell Time (t_p)	Max Reflow Cycles
CPC2907B	245°C	30 seconds	3

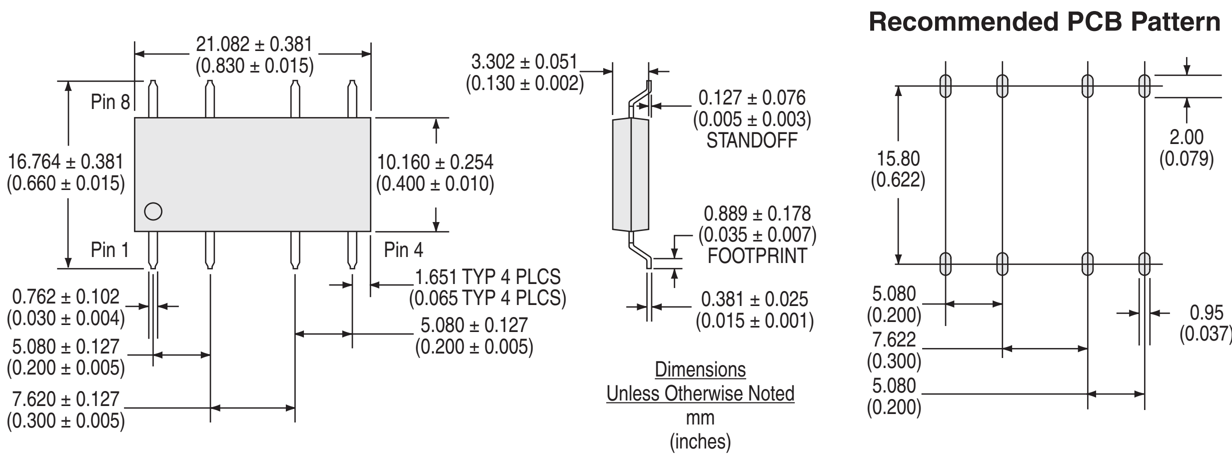
Board Wash

IXYS Integrated Circuits recommends the use of no-clean flux formulations. Board washing to reduce or remove flux residue following the solder reflow process is acceptable provided proper precautions are taken to prevent damage to the device. These precautions include, but are not limited to: using a low pressure wash and providing a follow up bake cycle sufficient to remove any moisture trapped within the device due to the washing process. Due to the variability of the wash parameters used to clean the board, determination of the bake temperature and duration necessary to remove the moisture trapped within the package is the responsibility of the user (assembler). Cleaning or drying methods that employ ultrasonic energy may damage the device and should not be used. Additionally, the device must not be exposed to flux or solvents that are Chlorine- or Fluorine-based.

Pb RoHS e3

MECHANICAL DIMENSIONS

CPC2907B



Notes:
1. Pin-to-pin tolerances are non-cumulative.
2. Lead thickness does not include plating (1000 microinches minimum).
3. Package outline exclusive of mold flash and metal burr.

For additional information please visit our website at: www.ixysic.com

Specification: DS-CPC2907B-R03

6/21/2018