IXYS
INTEGRATED CIRCUITS DIVISION

LAA108
Dual Single-Pole, Normally Open OptoMOS® Relay

Parameter	Ratings	Units
Blocking Voltage	100	V_P
Load Current	300	mA_{rms} / mA_{DC}
On-Resistance (max)	8	Ω

Features

- 3750V_{rms} Input/Output Isolation
- Low Drive Power Requirements (TTL/CMOS Compatible)
- High Reliability
- Arc-Free With No Snubbing Circuits
- FCC Compatible
- VDE Compatible
- No EMI/RFI Generation
- Small 8-Pin Package
- Machine Insertable, Wave Solderable
- Surface Mount Tape & Reel Versions Available

Applications

- Instrumentation
  - Multiplexers
  - Data Acquisition
  - Electronic Switching
  - I/O Subsystems
- Meters (Watt-Hour, Water, Gas)
- Medical Equipment-Patient/Equipment Isolation
- Security
- Aerospace
- Industrial Controls

Description

IXYS Integrated Circuits Division's LAA108 is a 100V, 300mA, 8Ω dual single-pole, normally open (1-Form-A) Solid State Relay that has two independently controlled, optically coupled outputs. The output MOSFET switches and photovoltaic die employ optically coupled MOSFET technology to provide 3750 V_{rms} of input-to-output isolation.

The relay outputs, that use patented OptoMOS architecture, are controlled by a highly efficient GaAlAS infrared LED.

This dual single-pole OptoMOS relay provides a more compact design solution than two discrete single-pole relays in a variety of applications, saving board space by incorporating both switches in a single 8-Pin package.

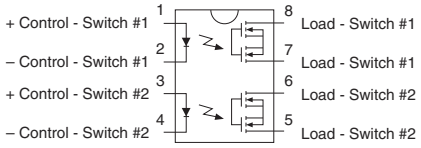
Approvals

- UL Certified Component: File E76270
- CSA Certified Component: Certificate 1175739
- EN/IEC 60950-1 Certified Component: TUV Certificate B 10 05 49410 006

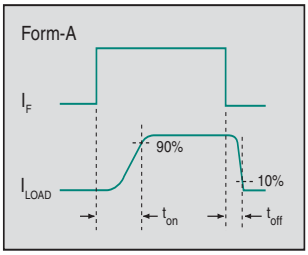
Ordering Information

Part #	Description
LAA108	8-Pin DIP (50/Tube)
LAA108S	8-Pin Surface Mount (50/Tube)
LAA108STR	8-Pin Surface Mount (1,000/Reel)
LAA108P	8-Pin Flat Pack (50/Tube)
LAA108PTR	8-Pin Flat Pack (1,000/Reel)

Pin Configuration



Switching Characteristics of Normally Open (Form A) Devices



Pb RoHS e3

Absolute Maximum Ratings @ 25°C

Parameter	Ratings	Units
Blocking Voltage	100	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]	800	mW
Isolation Voltage, Input to Output	3750	V_{rms}
Operational Temperature	-40 to +85	°C
Storage Temperature	-40 to +125	°C

[1] Derate linearly 1.33 mW / °C
[2] Derate linearly 6.67 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.

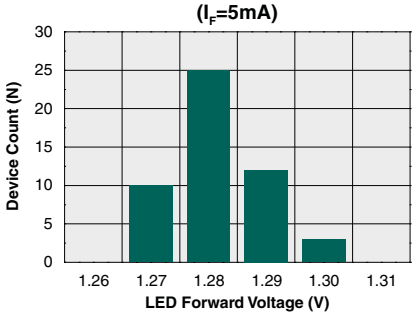
Electrical Characteristics @ 25ºC (Unless Otherwise Noted)

Parameter	Conditions	Symbol	Min	Typ	Max	Units
Output Characteristics						
Load Current						
Continuous [1]	-	I_L	-	-	300	mA_{rms} / mA_{DC}
Peak	t =10ms	I_{LPK}	-	-	±400	mA_P
On-Resistance [2]	I_L=300mA	R_{ON}	-	4.5	8	Ω
Off-State Leakage Current	V_L=100V_P	I_{LEAK}	-	-	1	µA
Switching Speeds						
Turn-On	I_F=5mA, V_L=10V	t_{on}	-	0.43	3	ms
Turn-Off		t_{off}	-	0.17	3	
Output Capacitance	V_L=50V, f=1MHz	C_{OUT}	-	110	-	pF
Input Characteristics						
Input Control Current to Activate [3]	I_L=300mA	I_F	-	0.5	2	mA
Input Control Current to Deactivate	-	-	0.2	0.3	-	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
Common Characteristics						
Input to Output Capacitance	-	$C_{I/O}$	-	3	-	pF

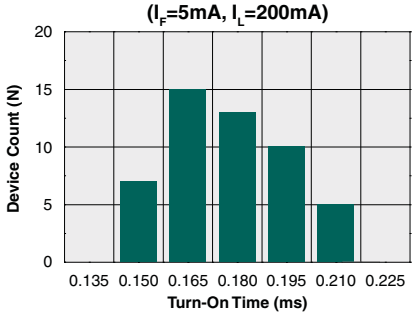
[1] If both poles operate simultaneously, the load current must be derated so as not to exceed the package total power dissipation value.
[2] Measurement taken within one (1) second of on-time.
[3] For applications requiring high-temperature operation (T>60ºC), a LED drive currrent of 4mA is recommended.

PERFORMANCE DATA@ 25ºC (Unless Otherwise Noted)*

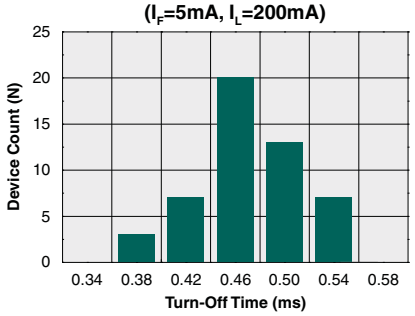
LED Forward Voltage Distribution (I_F=5mA)



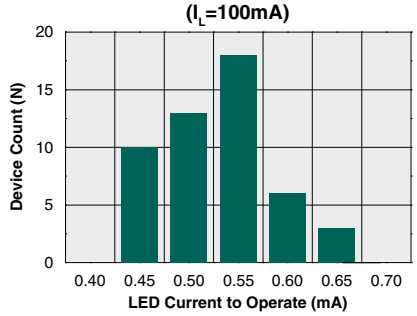
Turn-On Time Distribution (I_F=5mA, I_L=200mA)



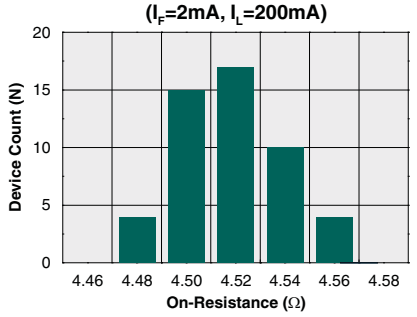
Turn-Off Time Distribution (I_F=5mA, I_L=200mA)



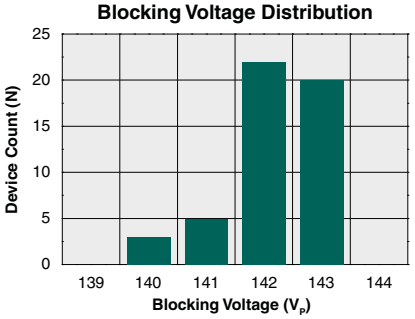
LED Current to Operate Distribution (I_L=100mA)



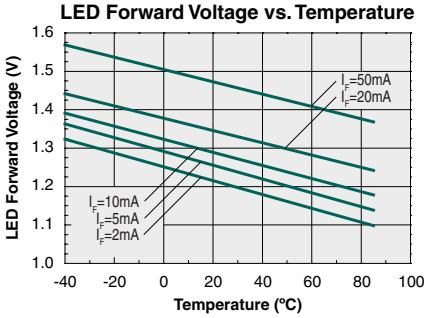
On-Resistance Distribution (I_F=2mA, I_L=200mA)



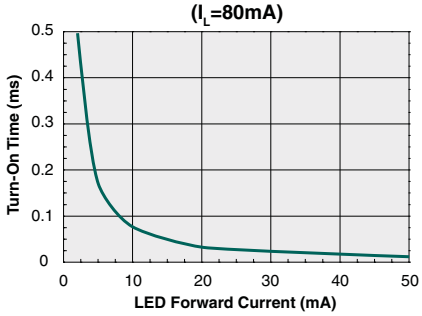
Blocking Voltage Distribution



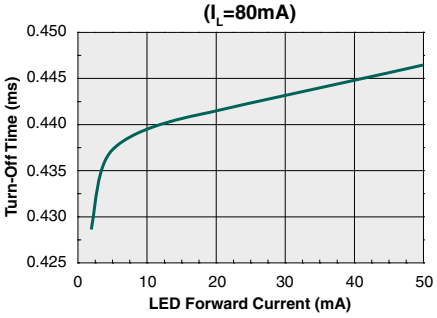
LED Forward Voltage vs. Temperature



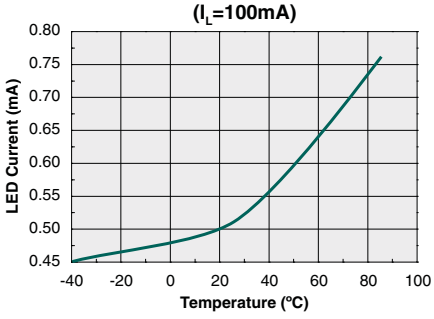
Turn-On Time vs. LED Forward Current (I_L=80mA)



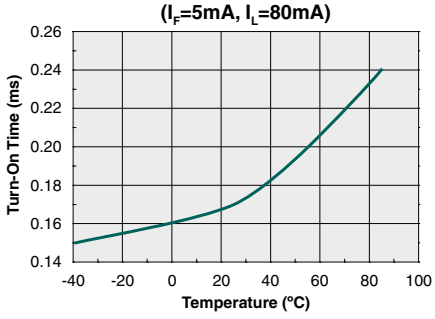
Turn-Off Time vs. LED Forward Current (I_L=80mA)



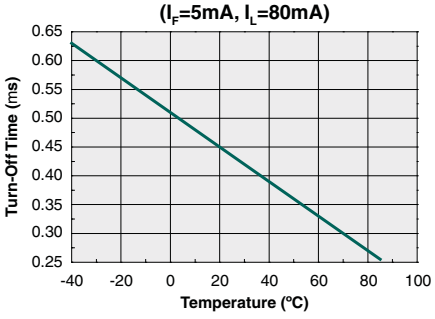
LED Current to Operate vs. Temperature (I_L=100mA)



Turn-On Time vs. Temperature (I_F=5mA, I_L=80mA)



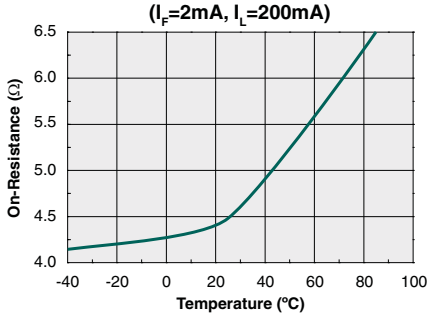
Turn-Off Time vs. Temperature (I_F=5mA, I_L=80mA)



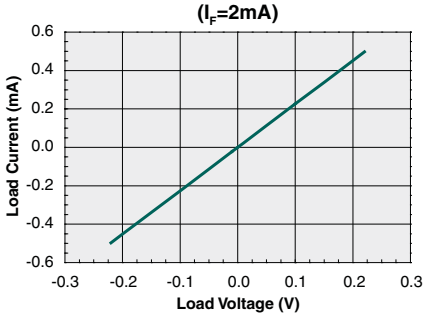
*The Performance data shown in the graphs above is typical of device performance. For guaranteed parameters not indicated in the written specifications, please contact our application department.

PERFORMANCE DATA@ 25ºC (Unless Otherwise Noted)*

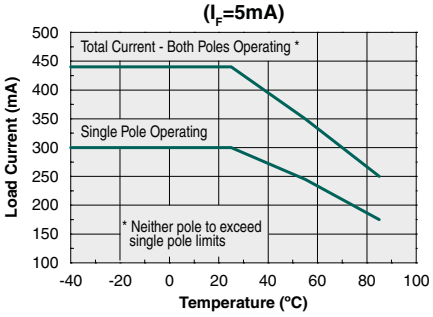
On-Resistance vs. Temperature (I_F=2mA, I_L=200mA)



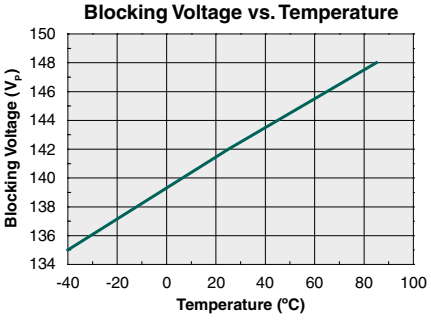
Typical Load Current vs. Load Voltage (I_F=2mA)



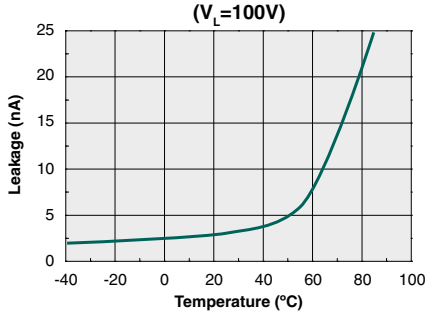
Maximum Load Current vs. Temperature (I_F=5mA)



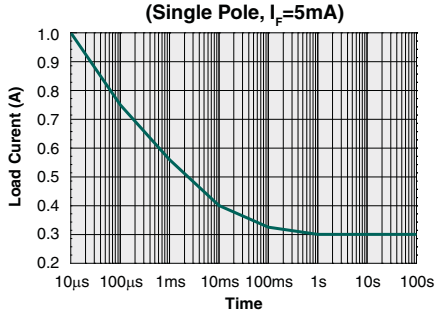
Blocking Voltage vs. Temperature



Leakage Current vs. Temperature Measured Across Pins 5 & 6, 7 & 8 (V_L=100V)



Energy Rating Curve (Single Pole, I_F=5mA)



*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

Moisture Sensitivity

All plastic encapsulated semiconductor packages are susceptible to moisture ingression. IXYS Integrated Circuits Division classified all of 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) rating** 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) Rating
LAA108 / LAA108S / LAA108P	MSL 1

ESD Sensitivity

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

Reflow Profile

This product has a maximum body temperature and time rating as shown below. All other guidelines of **J-STD-020** must be observed.

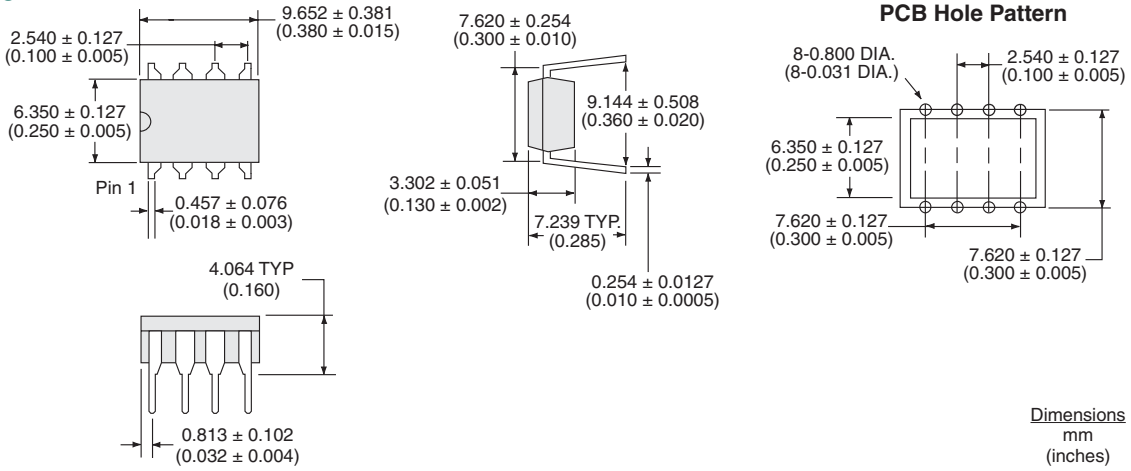
Device	Maximum Temperature x Time
LAA108 / LAA108S	250°C for 30 seconds
LAA108P	260°C for 30 seconds

Board Wash

IXYS Integrated Circuits Division recommends the use of no-clean flux formulations. However, board washing to remove flux residue is acceptable. Since IXYS Integrated Circuits Division employs the use of silicone coating as an optical waveguide in many of its optically isolated products, the use of a short drying bake could be necessary if a wash is used after solder reflow processes. Chlorine- or Fluorine-based solvents or fluxes should not be used. Cleaning methods that employ ultrasonic energy should not be used.

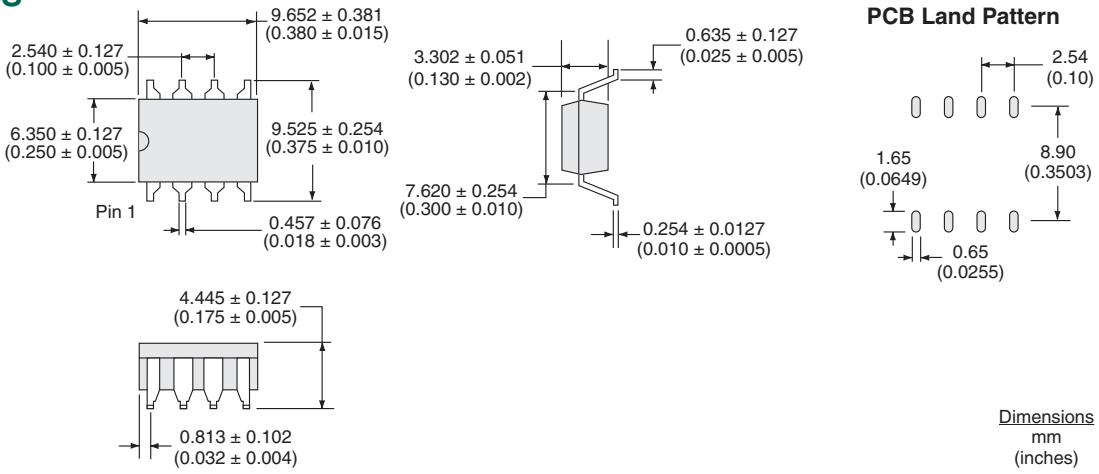
MECHANICAL DIMENSIONS

LAA108



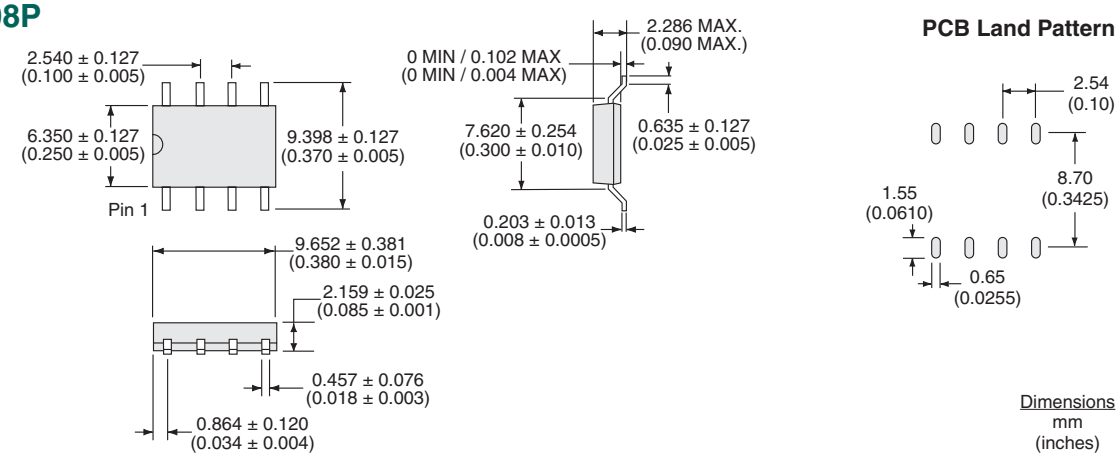
Dimensions
mm
(inches)

LAA108S



Dimensions
mm
(inches)

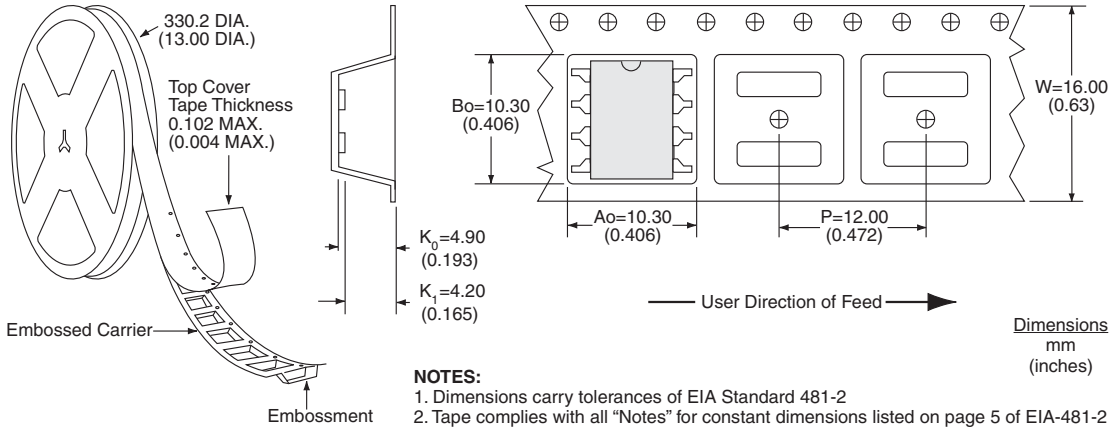
LAA108P



Dimensions
mm
(inches)

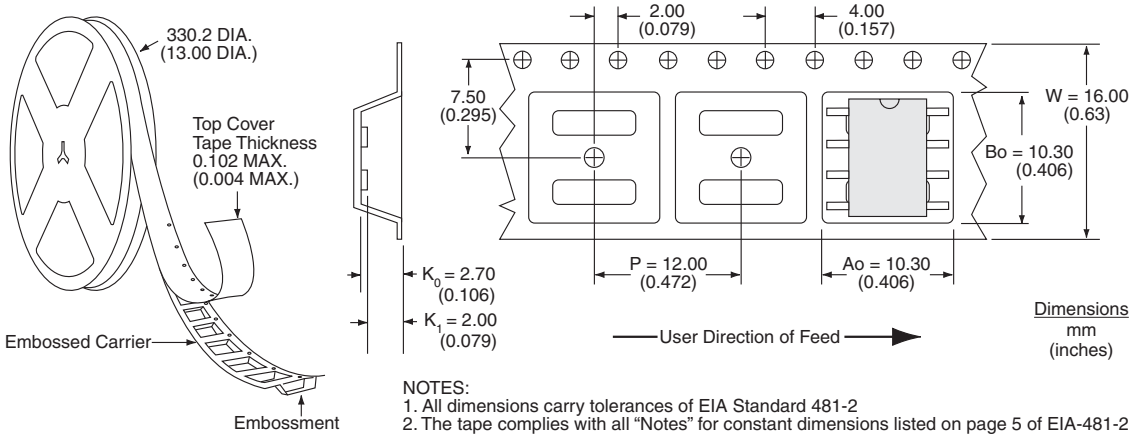
MECHANICAL DIMENSIONS

LAA108STR Tape & Reel



NOTES:
1. Dimensions carry tolerances of EIA Standard 481-2
2. Tape complies with all "Notes" for constant dimensions listed on page 5 of EIA-481-2

LAA108PTR Tape & Reel



NOTES:
1. All dimensions carry tolerances of EIA Standard 481-2
2. The tape complies with all "Notes" for constant dimensions listed on page 5 of EIA-481-2

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

Specification: DS-LAA108-R04

12/19/2012

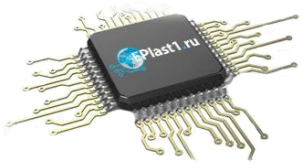
Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits,General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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Электронная почта: org@eplast1.ru
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