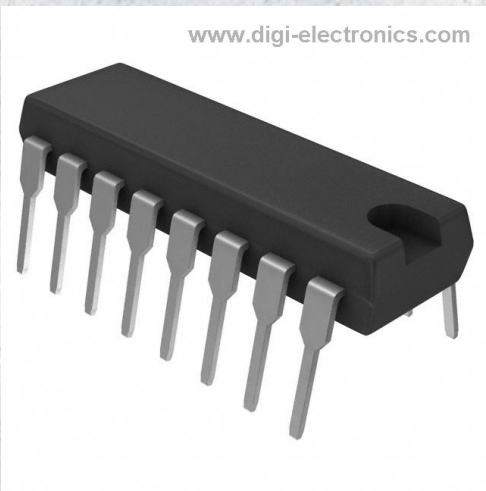
ISP847XBLSM Datasheet



https://www.DiGi-Electronics.com

DiGi Electronics Part Number	ISP847XBLSM-DG
Manufacturer	Isocom Components 2004 LTD
Manufacturer Product Number	ISP847XBLSM
Description	16PIN TRANSISTOR OUTPUT, QUAD OP
Detailed Description	Optoisolator Transistor Output 5300Vrms 4 Channel 16-DIP

This model ISP847XBLSM is available at DiGi Electronics.

DiGi Electronics offers a global database of semiconductor and electronic component datasheets.

We welcome your inquiries regarding pricing, lead time, or other product-related questions.

Request a Quote

Datasheet Search

Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

DiGi is a global authorized distributor of electronic components.

Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
ISP847XBLSM	Isocom Components 2004 LTD
Series:	Product Status:
ISP847	Active
Number of Channels:	Voltage - Isolation:
4	5300Vrms
Current Transfer Ratio (Min):	Current Transfer Ratio (Max):
200% @ 5mA	600% @ 5mA
Turn On / Turn Off Time (Typ):	Rise / Fall Time (Typ):
-	4µs, 3µs
Input Type:	Output Type:
DC	Transistor
Voltage - Output (Max):	Current - Output / Channel:
35V	50mA
Voltage - Forward (Vf) (Typ):	Current - DC Forward (If) (Max):
1.2V	50 mA
Vce Saturation (Max):	Operating Temperature:
200mV	-30°C ~ 100°C
Mounting Type:	Package / Case:
Through Hole	16-DIP (0.300", 7.62mm)
Supplier Device Package:	
16-DIP	

Environmental & Export classification

RoHS Status:	Moisture Sensitivity Level (MSL):
ROHS3 Compliant	1 (Unlimited)
REACH Status:	ECCN:
REACH Unaffected	EAR99
HTSUS:	
8541.49.8000	

ISOCOM COMPONENTS

ISP817, ISP827, ISP847

DESCRIPTION

The ISP817, ISP827 and ISP847 series of optically coupled isolator consist of an infrared light emitting diode and an NPN silicon photo transistor in a space efficient Dual In Line Plastic Package.

FEATURES

- AC Isolation Voltage 5000V_{RMS}
- CTR Selections Available
- Wide Operating Temperature Range
  -55°C to +110°C ISP817
  -40°C to +105°C ISP827 / ISP847
- RoHS Compliant
- UL File E91231 Package Code “EE”
- VDE Approval Certificate No. 40028086

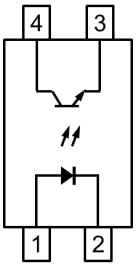
APPLICATIONS

- Computer Terminals
- Industrial System Controllers
- Measuring Instruments
- Signal Transmission between Systems of Different Potentials and Impedances

ORDER INFORMATION

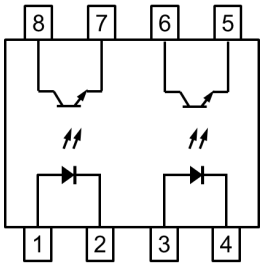
- Add X after PN for VDE Approval
- Add G after PN for 10mm lead spacing
- Add SM after PN for Surface Mount
- Add SMT&R after PN for Surface Mount Tape & Reel
  (Available for ISP817SM and ISP827SM)
- Consult Factory for Tape and Reel version of ISP847SM

ISP817



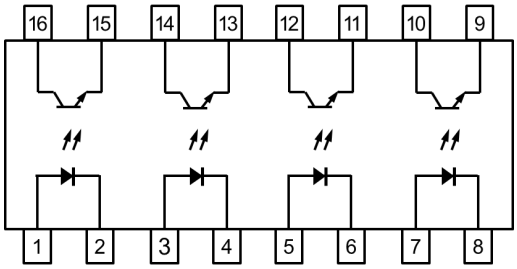
1	Anode
2	Cathode
3	Emitter
4	Collector

ISP827



1, 3	Anode
2, 4	Cathode
5, 7	Emitter
6, 8	Collector

ISP847



1, 3, 5, 7	Anode
2, 4, 6, 8	Cathode
9, 11, 13, 15	Emitter
10, 12, 14, 16	Collector

ISOCOM COMPONENTS 2004 LTD
Unit 25B, Park View Road West, Park View Industrial Estate
Hartlepool, Cleveland, TS25 1PE, United Kingdom
Tel : +44 (0)1429 863 609 Fax : +44 (0)1429 863 581
e-mail : sales@isocom.co.uk
http://www.isocom.com

ISOCOM COMPONENTS ASIA LTD
Hong Kong Office
Block A, 8/F, Wah Hing Industrial Mansion
36 Tai Yau Street, San Po Kong, Kowloon, Hong Kong
Tel : +852 2995 9217 Fax : +852 8161 6292
e-mail : sales@isocom.com.hk

ISOCOM COMPONENTS

ISP817, ISP827, ISP847

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C)

Stresses exceeding the absolute maximum ratings can cause permanent damage to the device. Exposure to absolute maximum ratings for long periods of time can adversely affect reliability.

Input

Forward Current	50mA
Peak Forward Current (100µs, 100Hz)	1A
Reverse Voltage	6V
Power dissipation	70mW
Junction Temperature	125 °C

Output

Collector to Emitter Voltage V_{CEO}		
	ISP817	80V
	ISP827 / ISP847	35V
Emitter to Collector Voltage V_{ECO}		6V
Collector Current		50mA
Power Dissipation		150mW
Junction Temperature		125 °C

Total Package

Isolation Voltage		5000V_{RMS}
Total Power Dissipation		200mW
Operating Temperature	ISP817	-55 to 110 °C
	ISP827 / ISP847	-40 to 105 °C
Storage Temperature		-55 to 125 °C
Lead Soldering Temperature (10s)		260°C

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Tel : +852 2995 9217 Fax : +852 8161 6292
e-mail : sales@isocom.com.hk

ISOCOM COMPONENTS

ISP817, ISP827, ISP847

ELECTRICAL CHARACTERISTICS (Ambient Temperature = 25°C unless otherwise specified)

INPUT

Parameter	Symbol	Test Condition	Min	Typ.	Max	Unit
Forward Voltage	V_F	I_F = 20mA		1.2	1.4	V
Reverse Leakage	I_R	V_R = 4V			10	µA
Terminal Capacitance	C_t	V = 0V, f = 1KHz		30	250	pF

OUTPUT

Parameter	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector−Emitter Breakdown Voltage	BV_{CEO}	I_C = 0.1mA, I_F = 0mA ISP817 ISP827 / ISP847	 80 35			V
Emitter−Collector Breakdown Voltage	BV_{ECO}	I_E = 10µA, I_F = 0mA	6			V
Collector−Emitter Dark Current	I_{CEO}	V_{CE} = 20V, I_F = 0mA			100	nA

ISOCOM COMPONENTS

ISP817, ISP827, ISP847

ELECTRICAL CHARACTERISTICS (Ambient Temperature = 25°C unless otherwise specified)

COUPLED

Parameter	Symbol	Test Condition	Min	Typ.	Max	Unit
Current Transfer Ratio	CTR	I_F = 5mA, V_{CE} = 5V	50		600	%
		Optional CTR Grades				
		GB	100		600	
		BL	200		600	
		GR	100		300	
		A	80		160	
		B	130		260	
		C	200		400	
		D	300		600	
Collector−Emitter Saturation Voltage	$V_{CE(sat)}$	I_F = 20mA, I_C = 1mA		0.1	0.2	V
Floating Capacitance	C_f	V = 0V, f = 1MHz		0.6	1	pF
Cut-Off Frequency	f_C	V_{CE} = 5V, I_C = 2mA R_L = 100Ω -3dB		80		kHz
Output Rise Time	t_r	V_{CC} = 5V I_C = 2mA R_L = 100Ω		4	18	µs
Output Fall Time	t_f			3	18	

ISOLATION

Parameter	Symbol	Test Condition	Min	Typ.	Max	Unit
Input to Output Isolation Voltage	V_{ISO}	AC 1 minute, RH = 40% to 60%	5000			V_{RMS}
Input to Output Isolation Resistance	R_{ISO}	V_{IO}= 500VDC RH = 40% to 60%	$5x10^{10}$	$1x10^{11}$		Ω

Measure with input leads shorted together and output leads shorted together.

ISOCOM COMPONENTS

ISP817, ISP827, ISP847

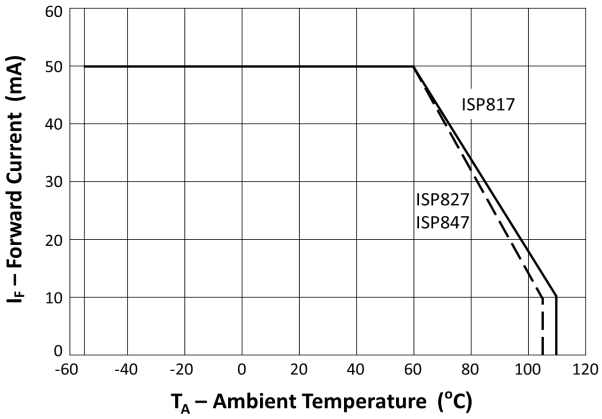


Fig 1 Forward Current vs Ambient Temperature

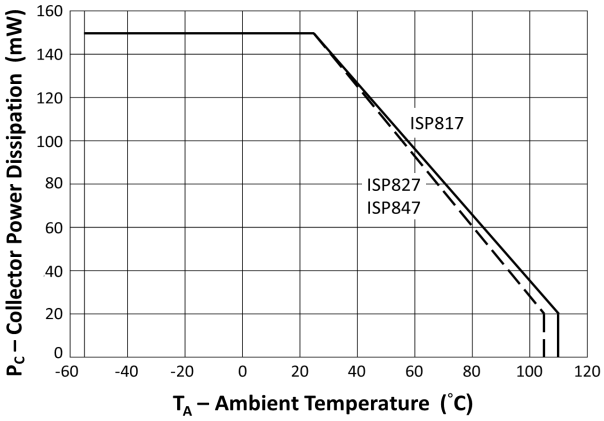


Fig 2 Collector Power Dissipation vs Ambient Temperature

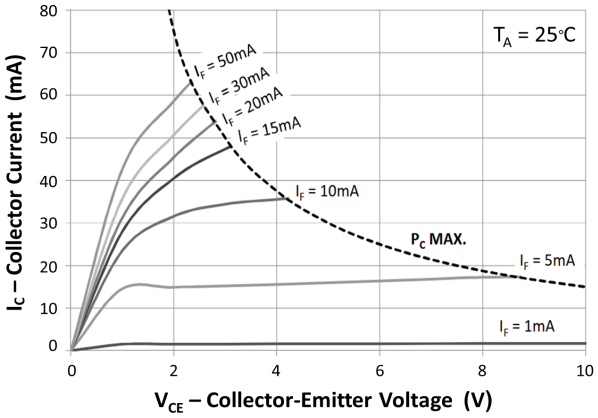


Fig 3 Collector Current vs Collector-Emitter Voltage (1)

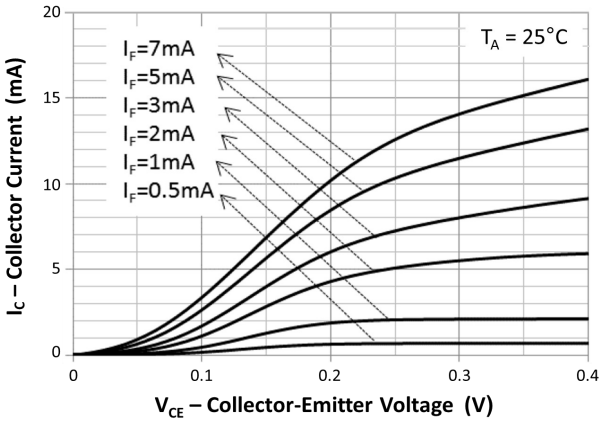


Fig 4 Collector Current Dissipation vs Collector Emitter Voltage (2)

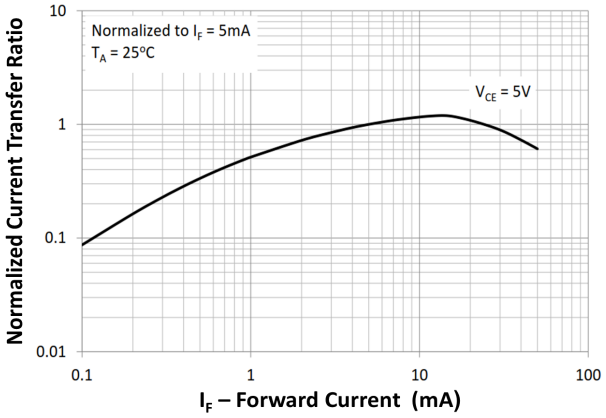


Fig 5 Normalized Current Transfer Ratio vs Forward Current

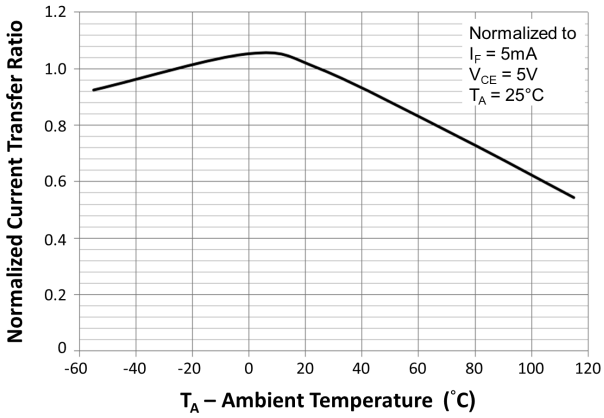


Fig 6 Normalized Current Transfer Ratio vs Ambient Temperature

ISOCOM COMPONENTS

ISP817, ISP827, ISP847

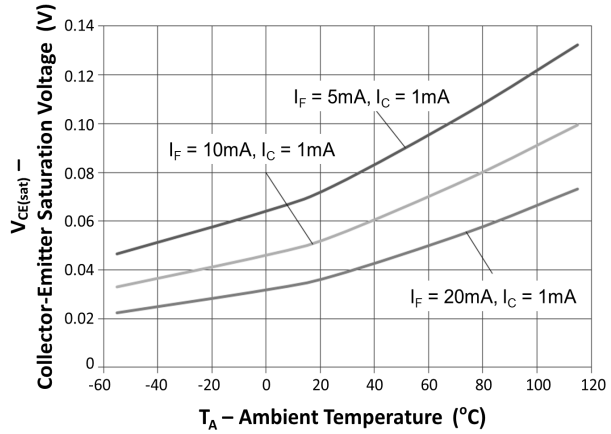


Fig Collector-Emitter Saturation Voltage vs Ambient Temperature

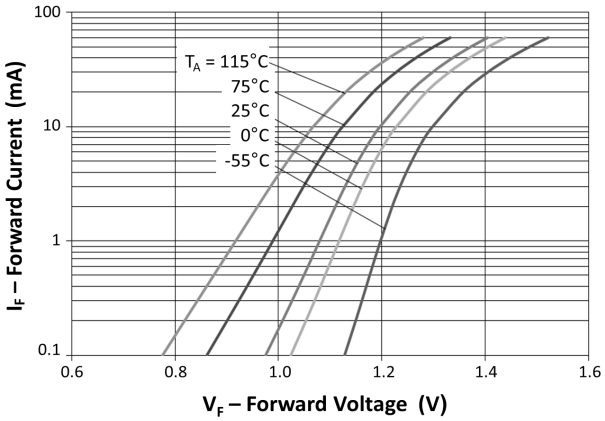


Fig 8 Forward Current vs Forward Voltage

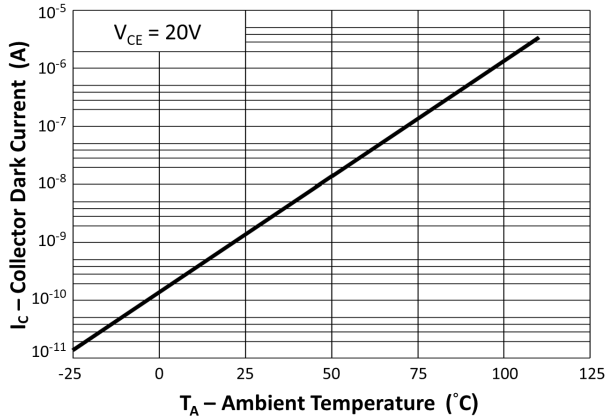


Fig 9 Collector Dark Current vs Ambient Temperature

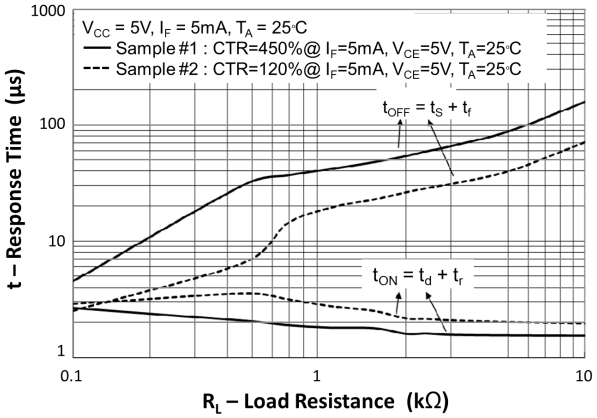


Fig 10 Switching Time vs Load Resistance

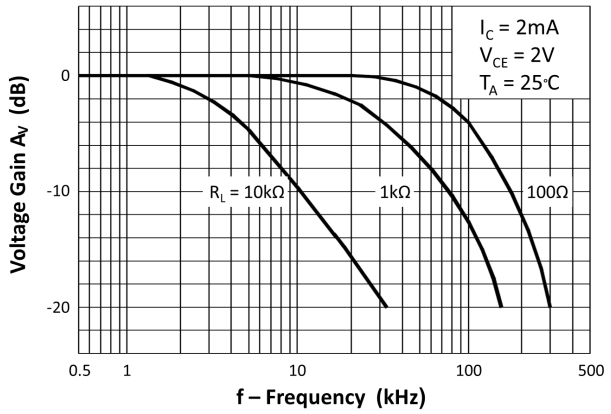
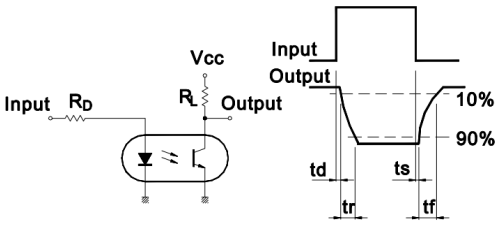
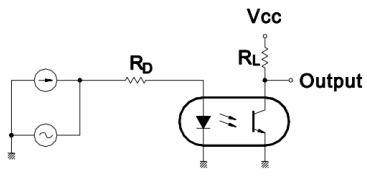


Fig 11 Frequency Response



Response Time Test Circuit



Frequency Response Test Circuit

ISOCOM COMPONENTS

ISP817, ISP827, ISP847

ORDER INFORMATION

ISP817 (UL Approval)			
After PN	**PN**	**Description**	**Packing quantity**
None	ISP817, ISP817GB, ISP817BL ISP817GR, ISP817A, ISP817B ISP817C, ISP817D	Standard DIP4	100 pcs per tube
G	ISP817G, ISP817GBG, ISP817BLG ISP817GRG, ISP817AG, ISP817BG ISP817CG, ISP817DG	10mm Lead Spacing	100 pcs per tube
SM	ISP817SM, ISP817GBSM, ISP817BLSM ISP817GRSM, ISP817ASM, ISP817BSM ISP817CSM, ISP817DSM	Surface Mount	100 pcs per tube
SMT&R	ISP817SMT&R, ISP817GBSMT&R ISP817GRSMT&R, ISP817BLSMT&R ISP817ASMT&R, ISP817BSMT&R ISP817CSMT&R, ISP817DSMT&R	Surface Mount Tape & Reel	1000 pcs per reel

ISP827 (UL Approval)			
After PN	**PN**	**Description**	**Packing quantity**
None	ISP827, ISP827GB, ISP827BL, ISP827GR, ISP827A, ISP827B, ISP827C, ISP827D	Standard DIP8	50 pcs per tube
G	ISP827G, ISP827GBG, ISP827BLG, ISP827GRG, ISP827AG, ISP827BG, ISP827CG, ISP827DG	10mm Lead Spacing	50 pcs per tube
SM	ISP827SM, ISP827GBSM, ISP827BLSM, ISP827GRSM, ISP827ASM, ISP827BSM, ISP827CSM, ISP827DSM	Surface Mount	50 pcs per tube
SMT&R	ISP827SMT&R, ISP827GBSMT&R, ISP827GRSMT&R, ISP827BLSMT&R, ISP827ASMT&R, ISP827BSMT&R, ISP827CSMT&R, ISP827DSMT&R	Surface Mount Tape & Reel	1000 pcs per reel

ISP847 (UL Approval)			
After PN	**PN**	**Description**	**Packing quantity**
None	ISP847, ISP847GB, ISP847BL, ISP847GR, ISP847A, ISP847B, ISP847C, ISP847D	Standard DIP16	25 pcs per tube
G	ISP847G, ISP847GBG, ISP847BLG, ISP847GRG, ISP847AG, ISP847BG, ISP847CG, ISP847DG	10mm Lead Spacing	25 pcs per tube
SM	ISP847SM, ISP847GBSM, ISP847BLSM, ISP847GRSM, ISP847ASM, ISP847BSM, ISP847CSM, ISP847DSM	Surface Mount	25 pcs per tube

ISOCOM COMPONENTS

ISP817, ISP827, ISP847

ORDER INFORMATION

Note: grade-xX-VDE = VDE-Xx-grade (e.g. AX = XA, BX = XB,etc)

ISP817X (UL and VDE Approvals)			
After PN	**PN**	**Description**	**Packing quantity**
None	ISP817X, ISP817XGB, ISP817XBL, ISP817XGR, ISP817XA, ISP817XB, ISP817XC, ISP817XD	Standard DIP4	100 pcs per tube
G	ISP817XG, ISP817XGBG, ISP817XBLG, ISP817XGRG, ISP817XAG, ISP817XBG, ISP817XCG, ISP817XDG	10mm Lead Spacing	100 pcs per tube
SM	ISP817XSM, ISP817XGBSM, ISP817XGRSM, ISP817XBLSM, ISP817XASM, ISP817XBSM, ISP817XCSM, ISP817XDSM	Surface Mount	100 pcs per tube
SMT&R	ISP817XSMT&R, ISP817XGBSMT&R, ISP817XGRSMT&R, ISP817XBLSMT&R, ISP817XASMT&R, ISP817XBSMT&R, ISP817XCSMT&R, ISP817XDSMT&R	Surface Mount Tape & Reel	1000 pcs per reel

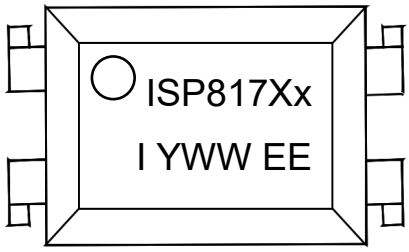
ISP827X (UL and VDE Approvals)			
After PN	**PN**	**Description**	**Packing quantity**
None	ISP827X, ISP827XGB, ISP827XBL, ISP827XGR, ISP827XA, ISP827XB, ISP827XC, ISP827XD	Standard DIP8	50 pcs per tube
G	ISP827XG, ISP827XGBG, ISP827XBLG, ISP827XGRG, ISP827XAG, ISP827XBG, ISP827XCG, ISP827XDG	10mm Lead Spacing	50 pcs per tube
SM	ISP827XSM, ISP827XGBSM, ISP827XGRSM, ISP827XBLSM, ISP827XASM, ISP827XBSM, ISP827XCSM, ISP827XDSM	Surface Mount	50 pcs per tube
SMT&R	ISP827XSMT&R, ISP827XGBSMT&R, ISP827XGRSMT&R, ISP827XBLSMT&R, ISP827XASMT&R, ISP827XBSMT&R, ISP827XCSMT&R, ISP827XDSMT&R	Surface Mount Tape & Reel	1000 pcs per reel

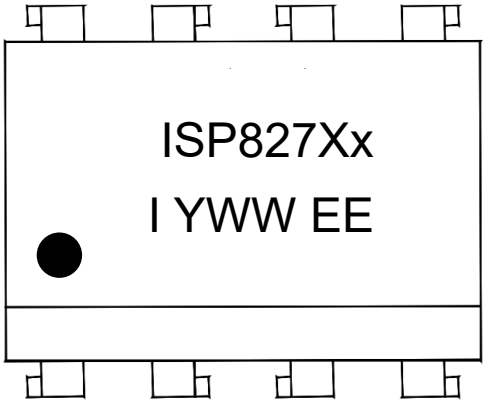
ISP847 (UL and VDE Approvals)			
After PN	**PN**	**Description**	**Packing quantity**
None	ISP847X, ISP847XGBL, ISP847XBL, ISP847XGR, ISP847XA, ISP847XB, ISP847XC, ISP847XD	Standard DIP16	25 pcs per tube
G	ISP847XG, ISP847XGBG, ISP847XBLG, ISP847XGRG, ISP847XAG, ISP847XBG, ISP847XCG, ISP847XDG	10mm Lead Spacing	25 pcs per tube
SM	ISP847XSM, ISP847XGBSM, ISP847XGRSM, ISP847XBLSM, ISP847XASM, ISP847XBSM, ISP847XCSM, ISP847XDSM	Surface Mount	25 pcs per tube

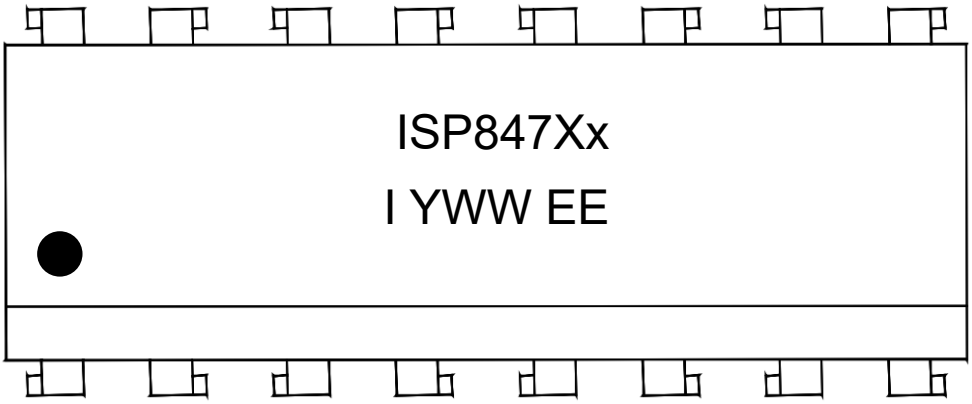
ISOCOM COMPONENTS

ISP817, ISP827, ISP847

DEVICE MARKING







ISP817	Part Number for Single Channel
ISP827	Part Number for Dual Channel
ISP847	Part Number for Quad Channel
X	VDE Option
x	CTR Grade, e.g. A, B, C, etc.
Note : Alternate Marking xX (e.g. AX, BX, etc.)	
I	Isocom
Y	Year code (can be single or double digit)
WW	2 digit Week code
EE	UL Model

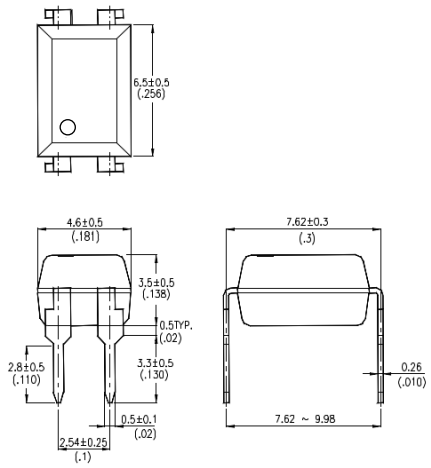
ISOCOM COMPONENTS

ISP817, ISP827, ISP847

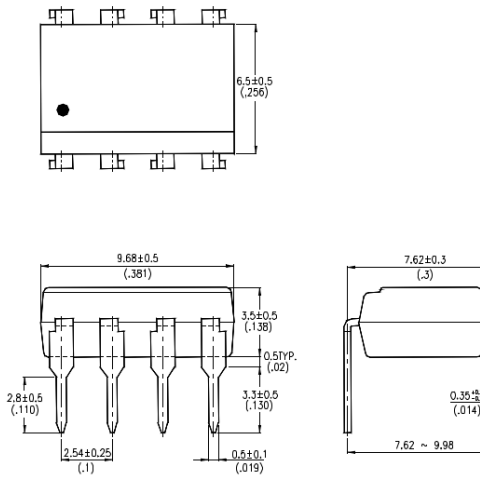
PACKAGE DIMENSIONS in mm (inch)

DIP

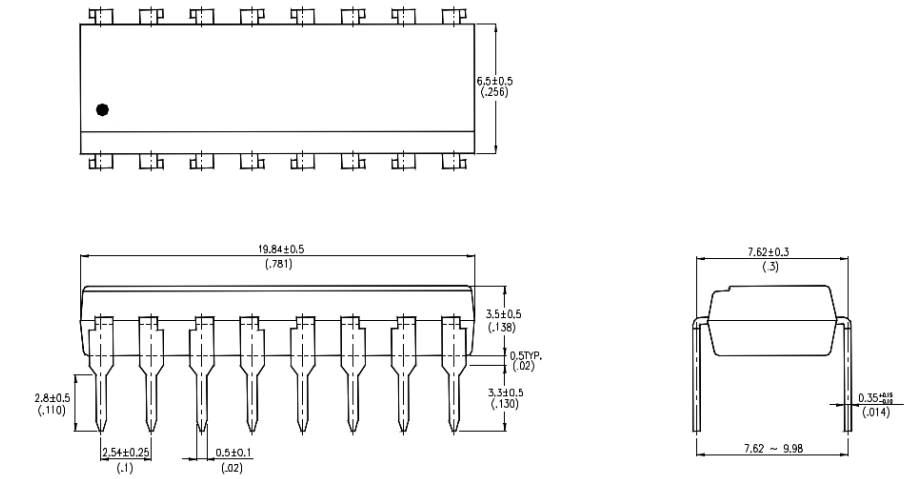
ISP817



ISP827



ISP847



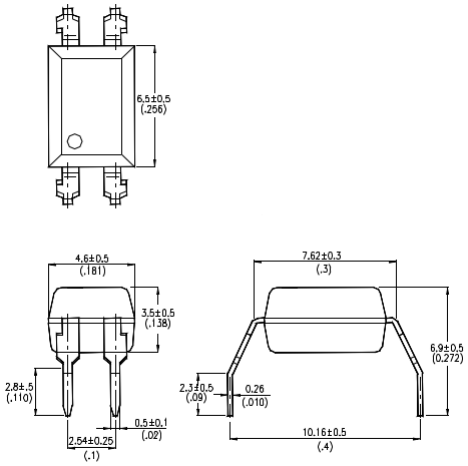
ISOCOM COMPONENTS

ISP817, ISP827, ISP847

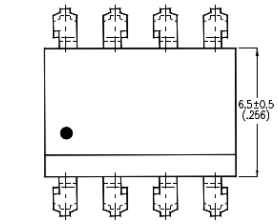
PACKAGE DIMENSIONS in mm (inch)

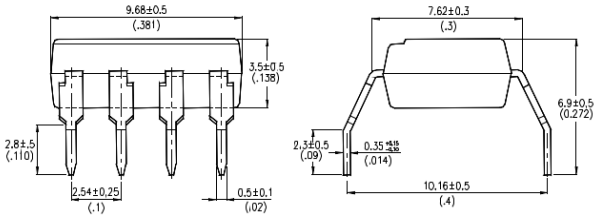
G Form

ISP817G

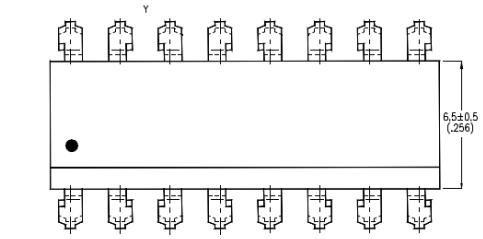


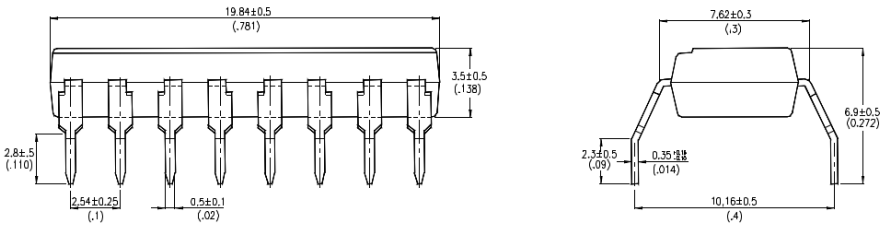
ISP827G





ISP847G





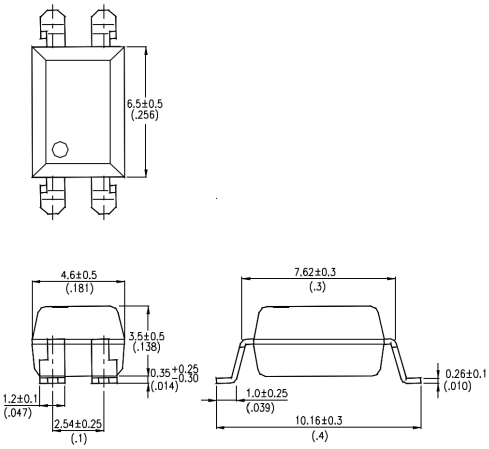
ISOCOM COMPONENTS

ISP817, ISP827, ISP847

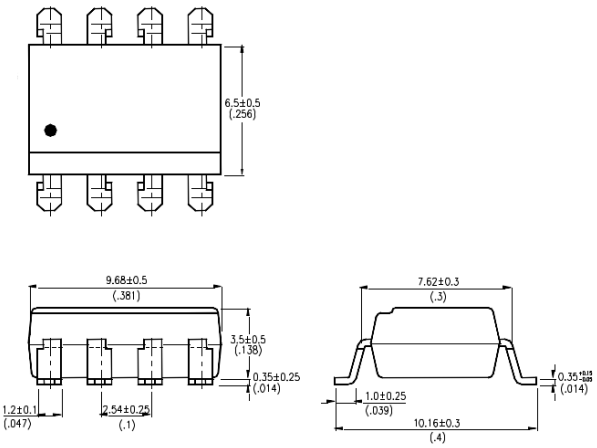
PACKAGE DIMENSIONS in mm (inch)

SMD

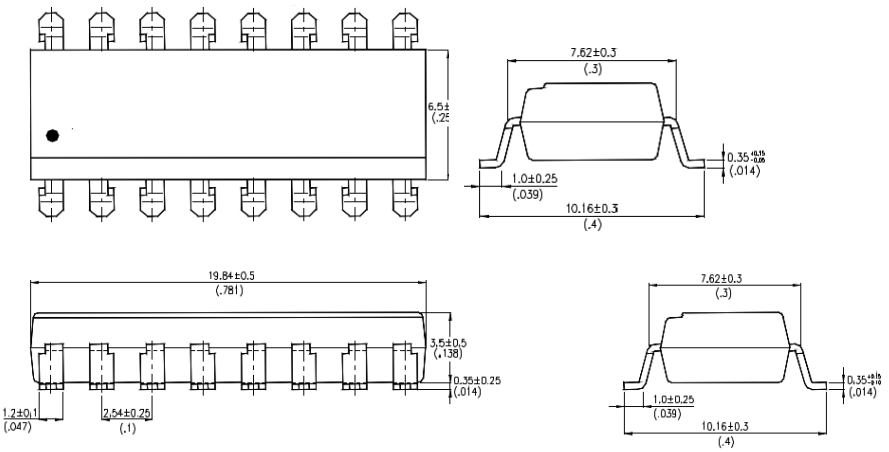
ISP817SM



ISP827SM



ISP847SM

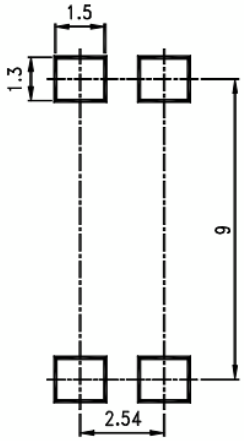


ISOCOM COMPONENTS

ISP817, ISP827, ISP847

RECOMMENDED PAD LAYOUT FOR SMD (mm)

ISP817SM



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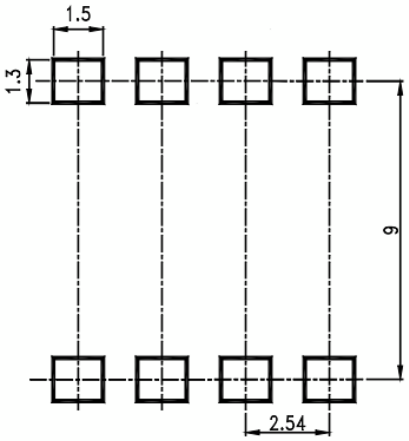
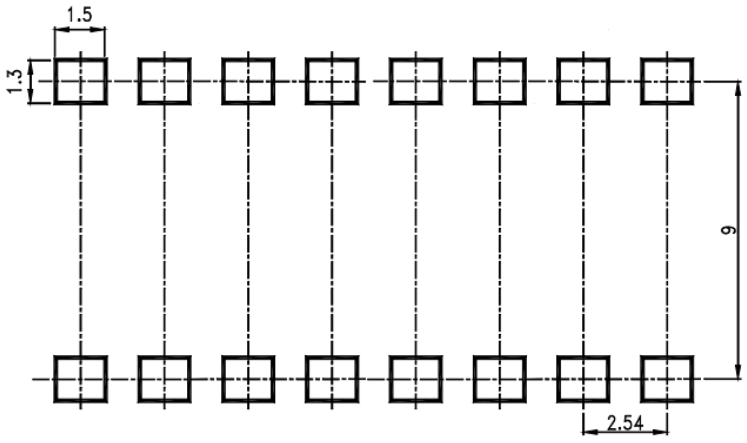


ISP847SM

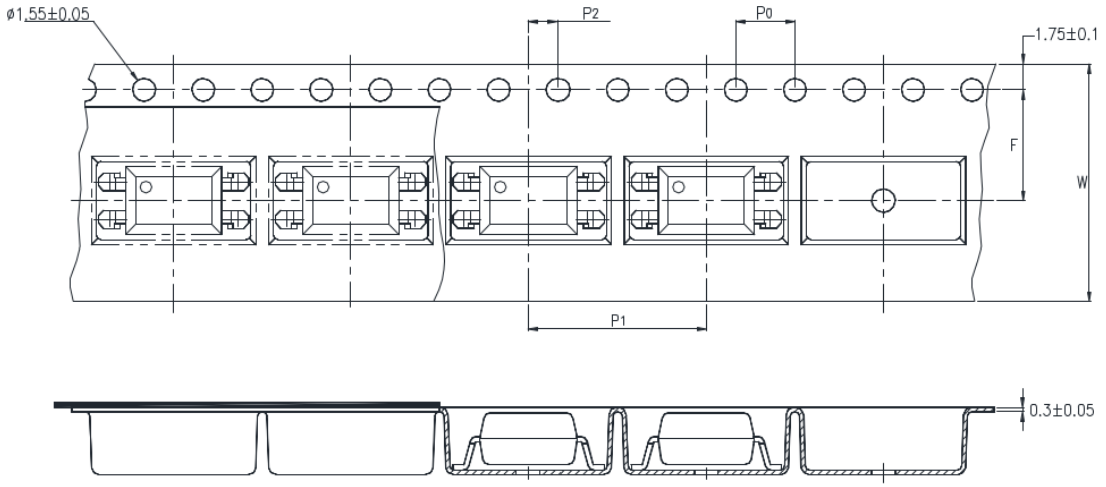


ISOCOM COMPONENTS

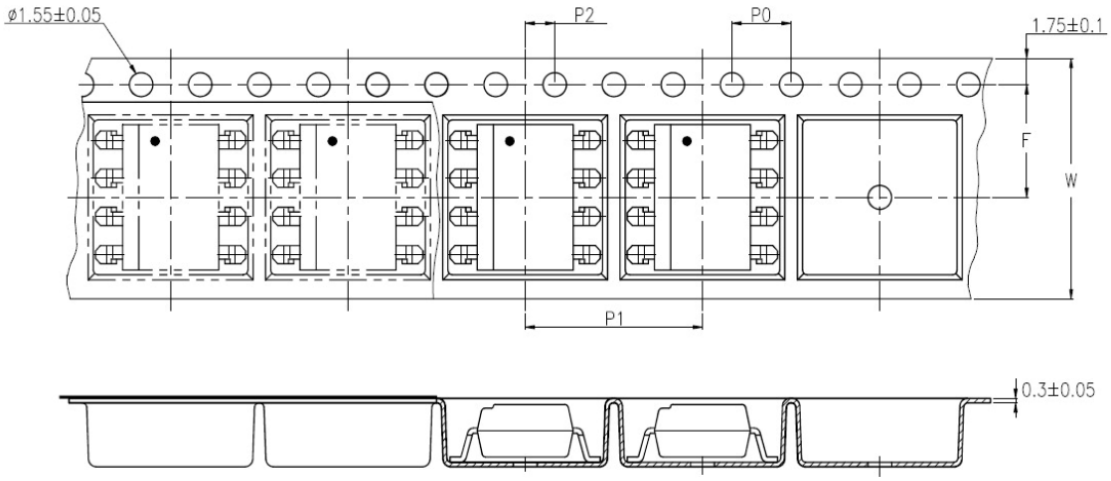
ISP817, ISP827, ISP847

TAPE AND REEL PACKAGING

ISP817SMT&R



ISP827SMT&R

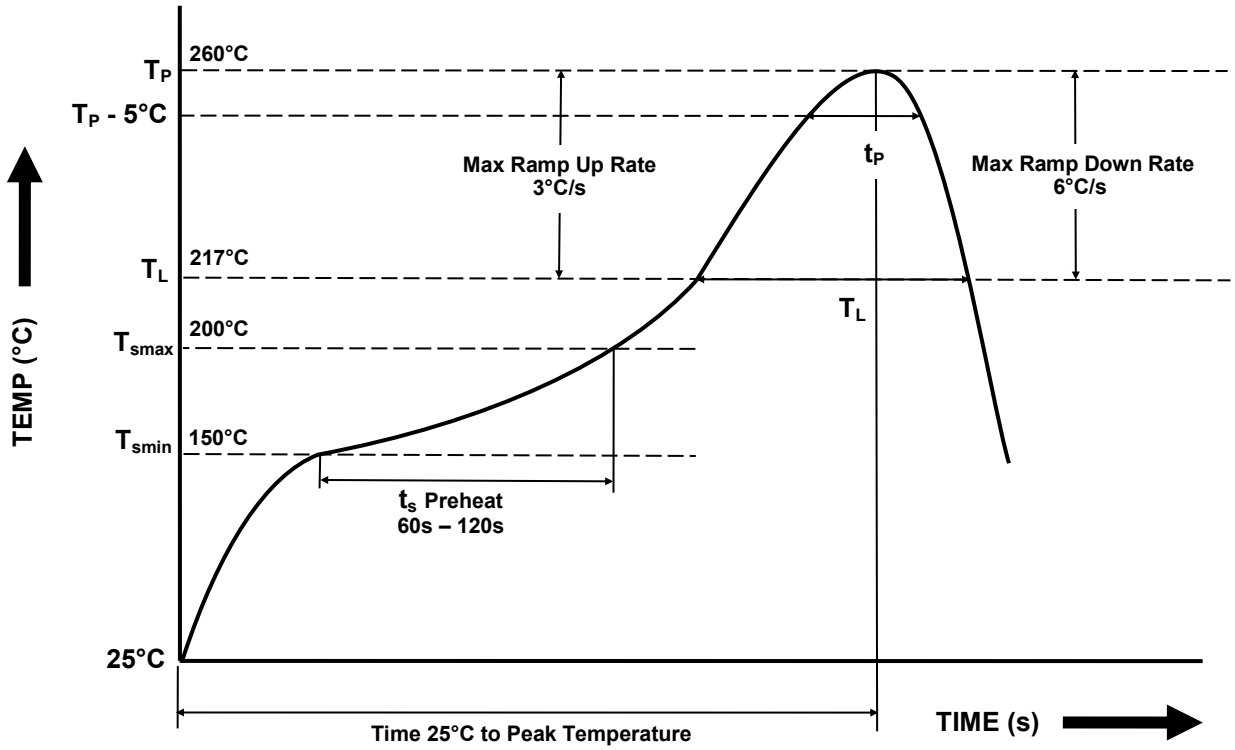


Description	Symbol	Dimension mm (inch)
Tape Width	W	16 ± 0.3 (0.63)
Pitch of Sprocket Holes	P_0	4 ± 0.1 (0.15)
Distance of Compartment to Sprocket Holes	F	7.5 ± 0.1 (0.295)
	P_2	2 ± 0.1 (0.079)
Distance of Compartment to Compartment	P_1	12 ± 0.1 (0.472)

ISOCOM COMPONENTS

ISP817, ISP827, ISP847

IR REFLOW SOLDERING TEMPERATURE PROFILE FOR SMD
One Time Reflow Soldering is Recommended.
Do Not Immerse Device Body in Solder Paste.



Profile Details	Conditions
Preheat - Min Temperature (T_{SMIN}) - Max Temperature (T_{SMAX}) - Time T_{SMIN} to T_{SMAX} (t_s)	 150°C 200°C 60s - 120s
Soldering Zone - Peak Temperature (T_P) - Time at Peak Temperature - Liquidous Temperature (T_L) - Time within 5°C of Actual Peak Temperature (T_P – 5°C) - Time maintained above T_L (t_L) - Ramp Up Rate (T_L to T_P) - Ramp Down Rate (T_P to T_L)	 260°C 10s max 217°C 30s max 60s - 100s 3°C/s max 6°C/s max
Average Ramp Up Rate (T_{smax} to T_P)	3°C/s max
Time 25°C to Peak Temperature	8 minutes max

ISOCOM COMPONENTS

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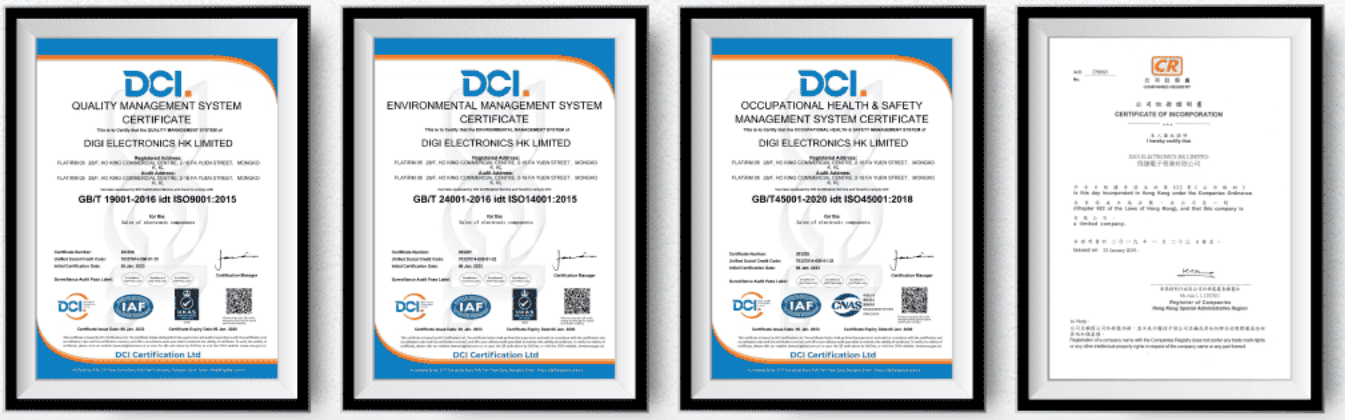

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