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

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	fc	V_{CE} = 5V, I_C = 2mA, R_L = 100Ω, -3dB		80		kHz
Output Rise Time	t_r	V_{CE} = 2V, Ic = 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% Note 1	5300			V_{RMS}
Input to Output Isolation Resistance	R_{ISO}	V_{IO}= 500V, RH = 40% to 60% Note 1	$5x10^{10}$	$1x10^{11}$		Ω

Note 1 : Measure with input leads shorted together and output leads shorted together.

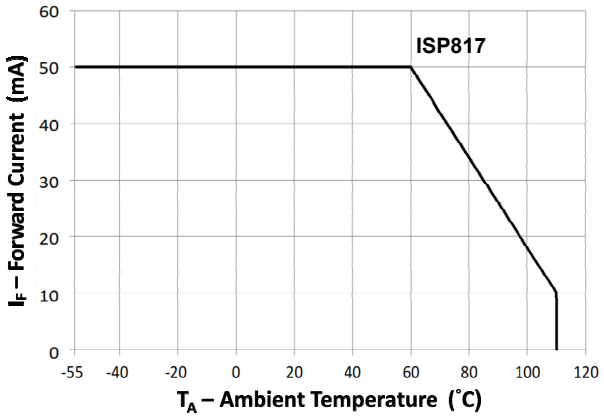


Fig 1 Forward Current vs Ambient Temperature (1)

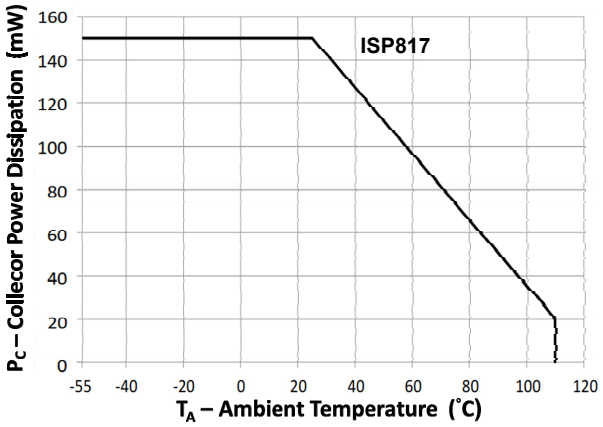


Fig 2 Collector Power Dissipation vs Ambient Temperature (1)

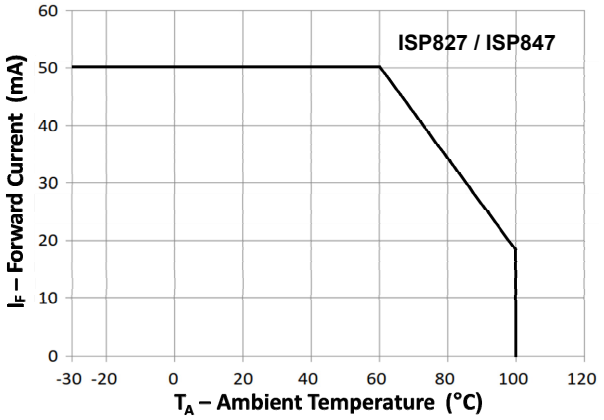


Fig 3 Forward Current vs Ambient Temperature (2)

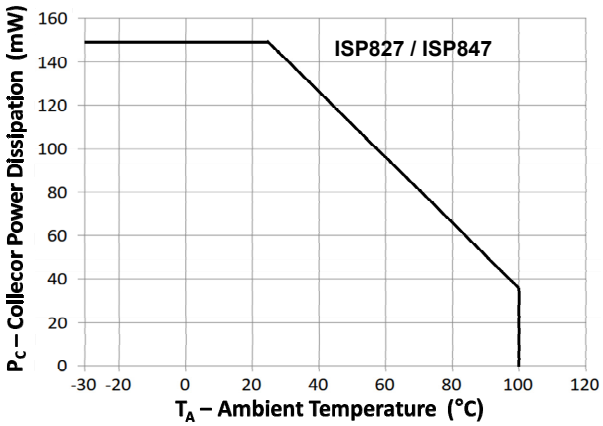


Fig 4 Collector Power Dissipation vs Ambient Temperature (2)

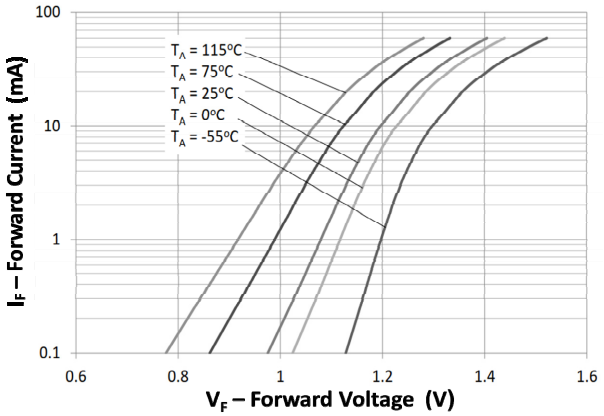


Fig 5 Forward Current vs Forward Voltage

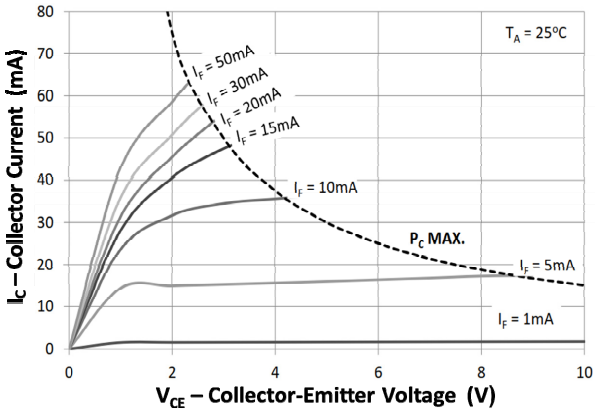


Fig 6 Collector Current vs Collector-Emitter Voltage

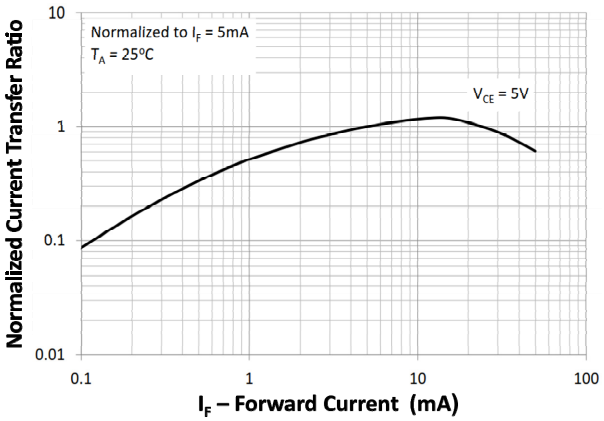


Fig 7 Normalized Current Transfer Ratio vs Forward Current

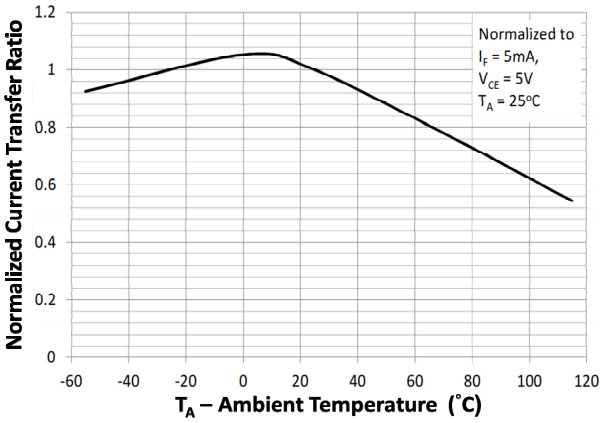


Fig 8 Normalized Current Transfer Ratio vs Ambient Temperature

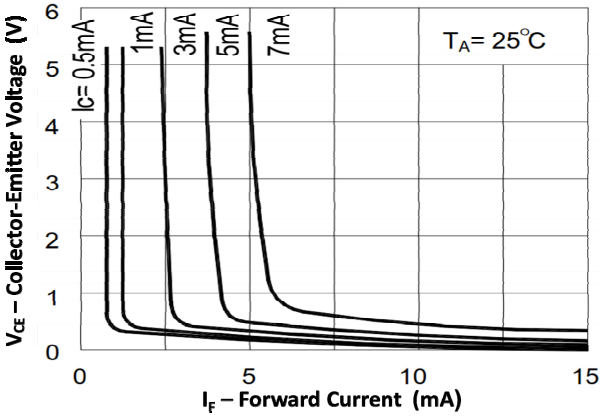


Fig 9 Collector-Emitter Voltage vs Forward Current

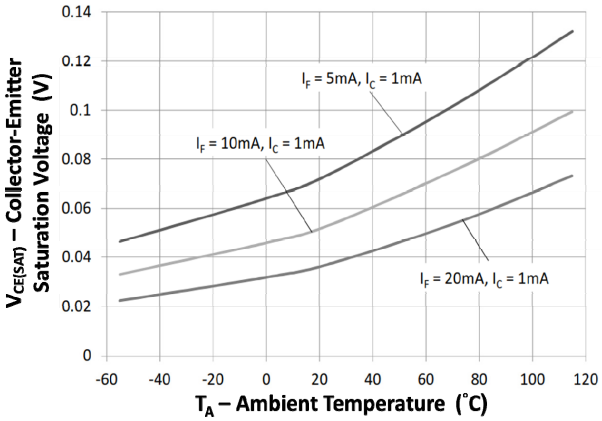


Fig 10 Collector-Emitter Saturation Voltage vs Ambient Temperature

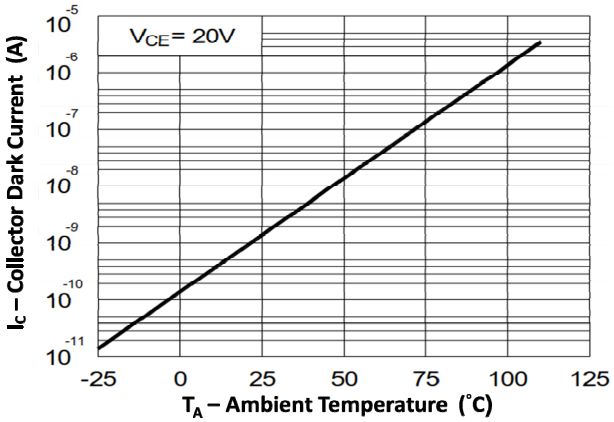


Fig 11 Collector Dark Current vs Ambient Temperature

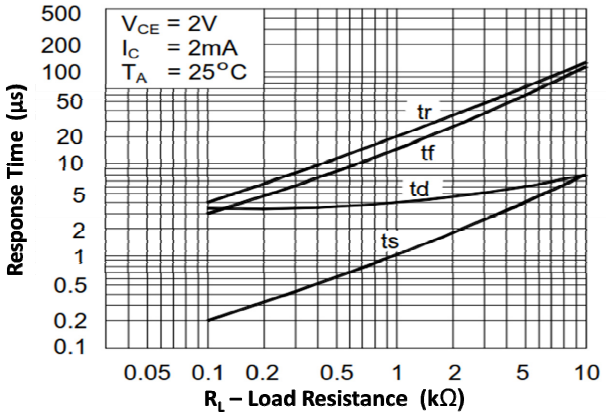
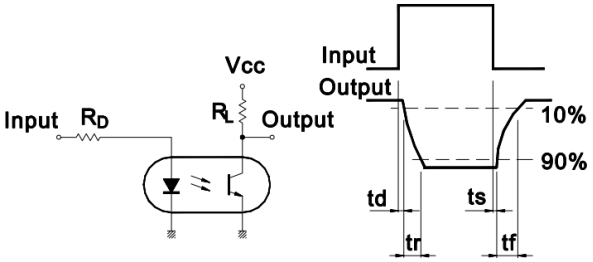


Fig 12 Response Time vs Load Resistance



Response Time Test Circuit

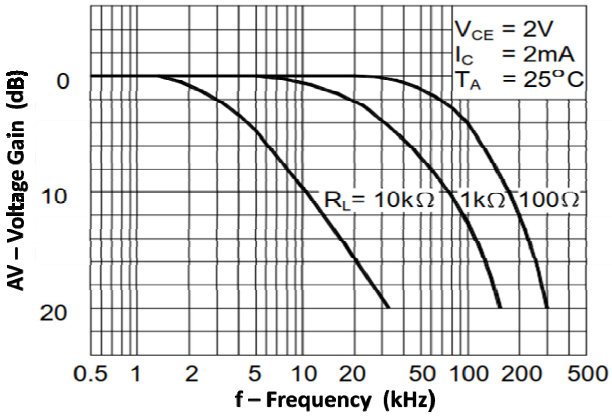
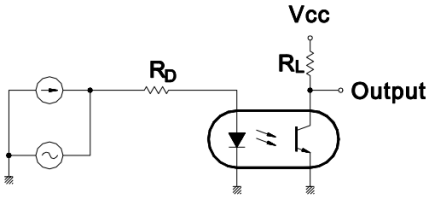


Fig 13 Frequency Response



Frequency Response Test Circuit

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

ORDER INFORMATION

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, ISP817XBXSM, 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

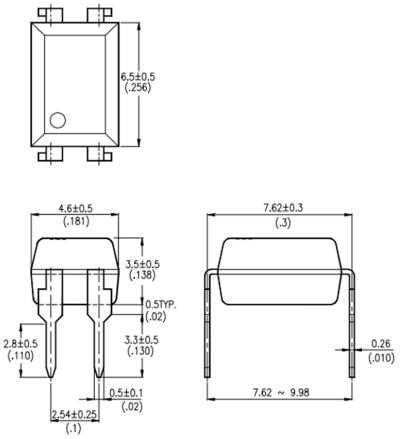
ISP827X (UL and VDE Approvals)			
After PN	**PN**	**Description**	**Packing quantity**
None	ISP827X, ISP827XGB, ISP827XBL, ISP827XGR, ISP827XA, ISP827XB, ISP827XC, ISP827XD	Standard DIP8	50 pcs per tube
G	ISP827XG, ISP827XGBG, ISP827XBLG, ISP827XGRG, ISP827XAG, ISP827XBG, ISP827XCG, ISP827XDG	10mm Lead 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

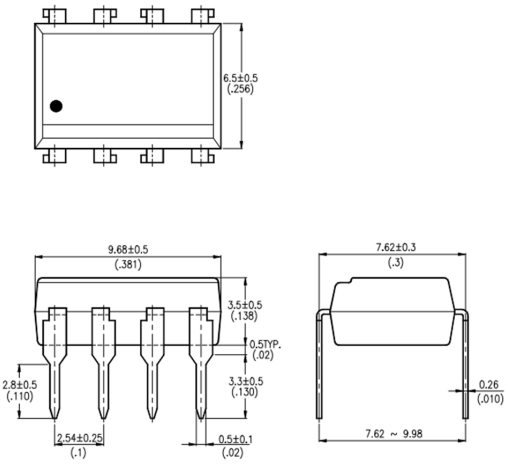
PACKAGE DIMENSIONS in mm (inch)

DIP

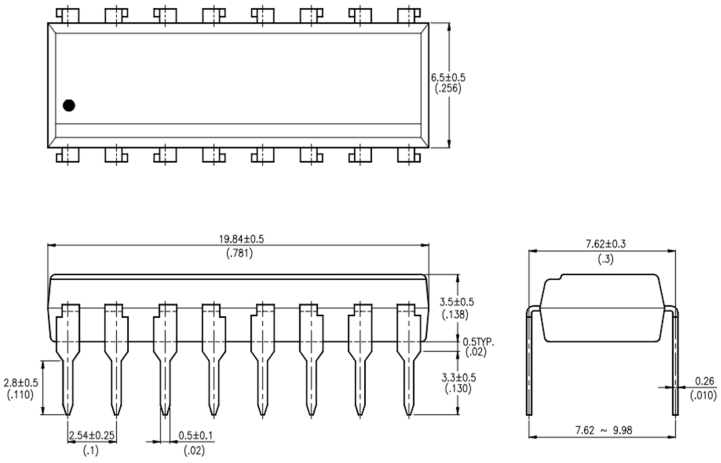
ISP817



ISP827



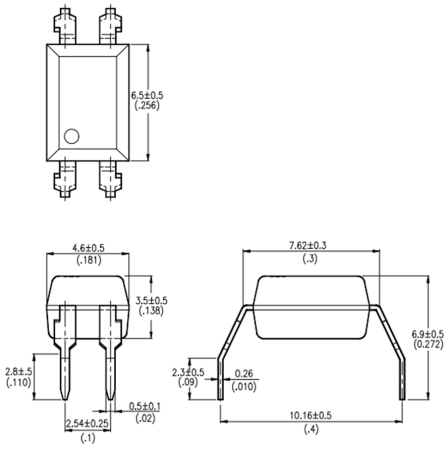
ISP847



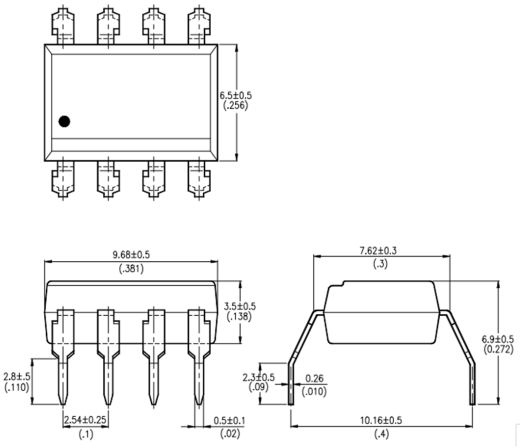
PACKAGE DIMENSIONS in mm (inch)

G Form

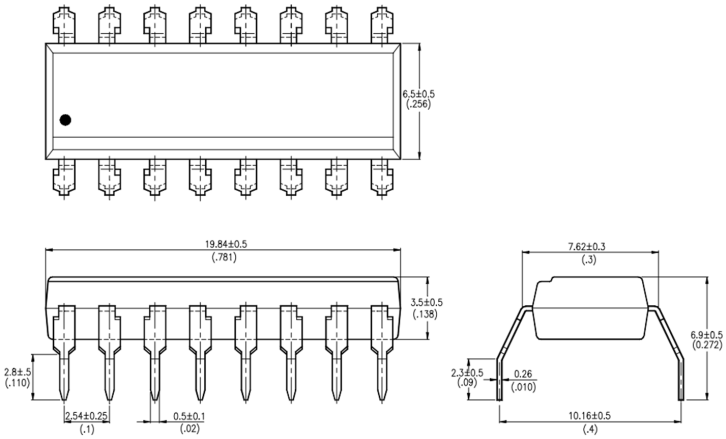
ISP817G



ISP827G



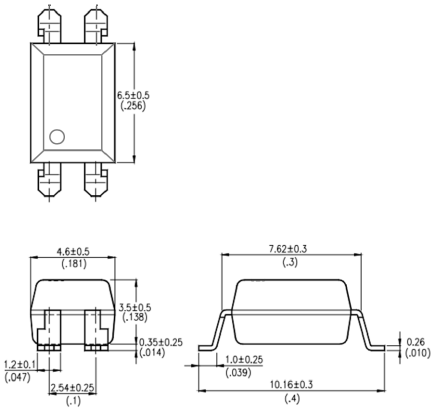
ISP847G



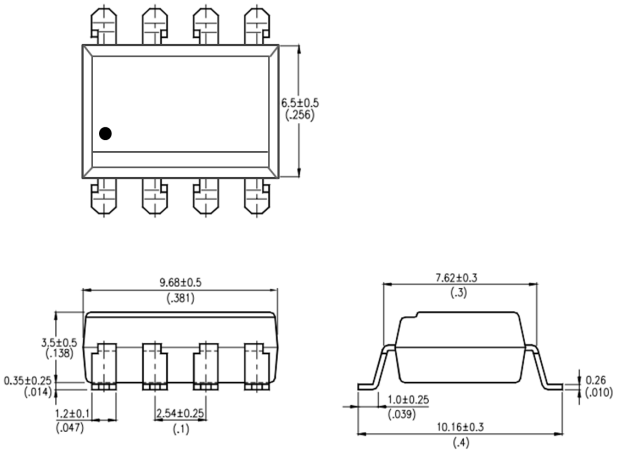
PACKAGE DIMENSIONS in mm (inch)

SMD

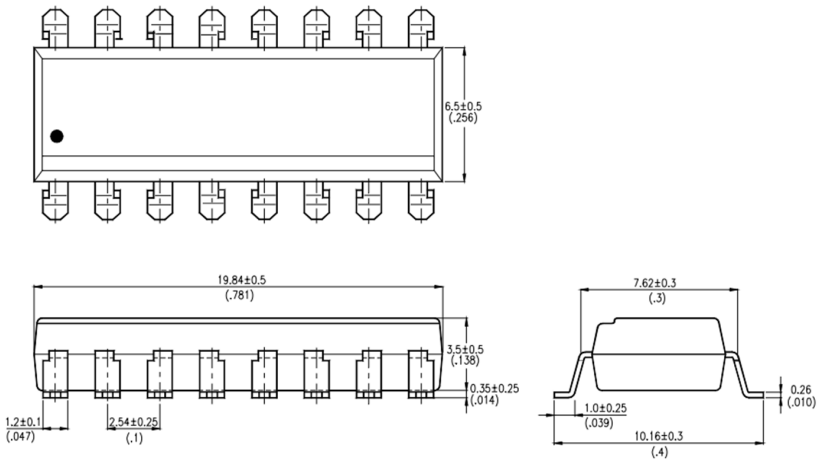
ISP817SM



ISP827SM

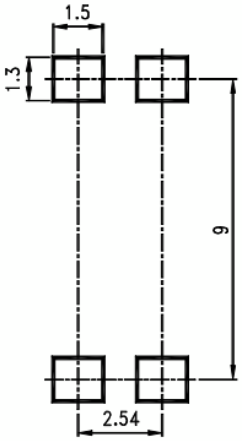


ISP847SM

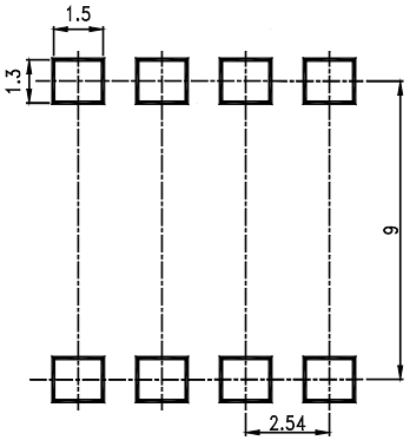


RECOMMENDED PAD LAYOUT FOR SMD (mm)

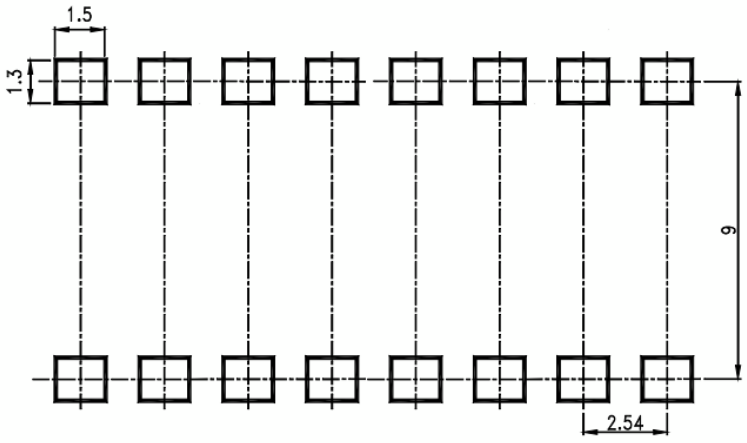
ISP817SM



ISP827SM

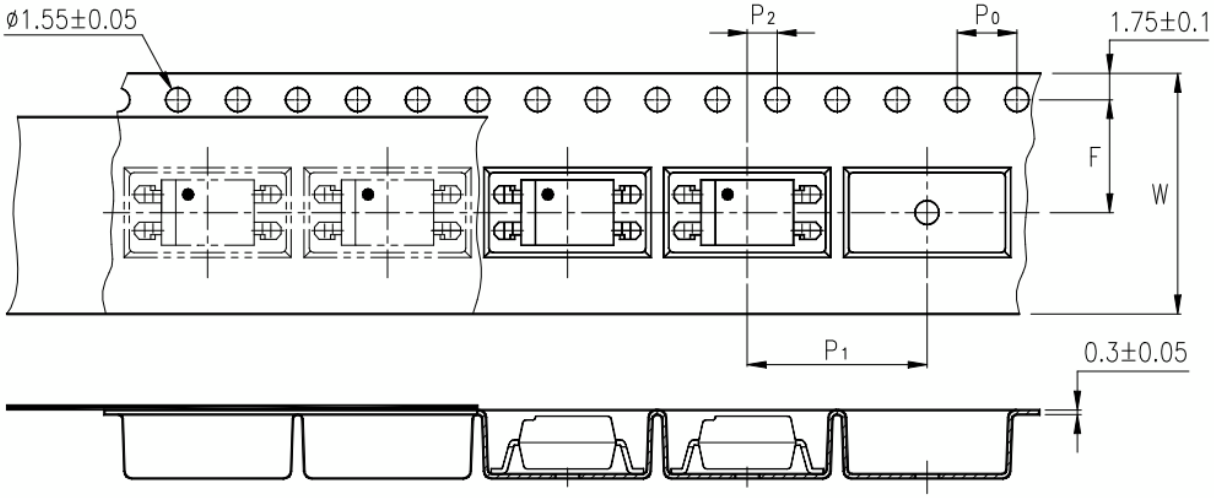


ISP847SM

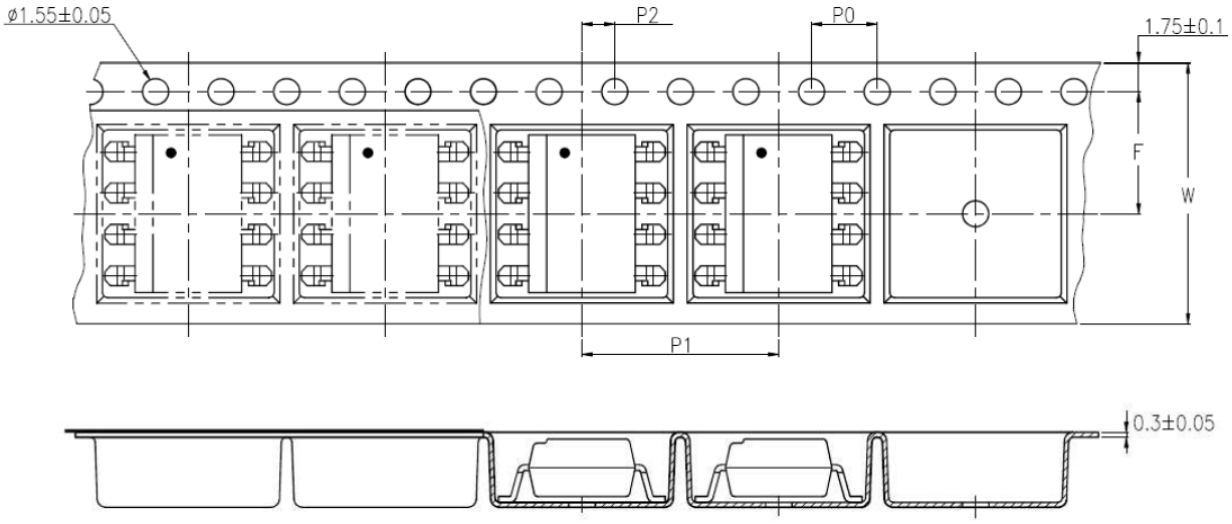


TAPE AND REEL PACKAGING

ISP817SMT&R

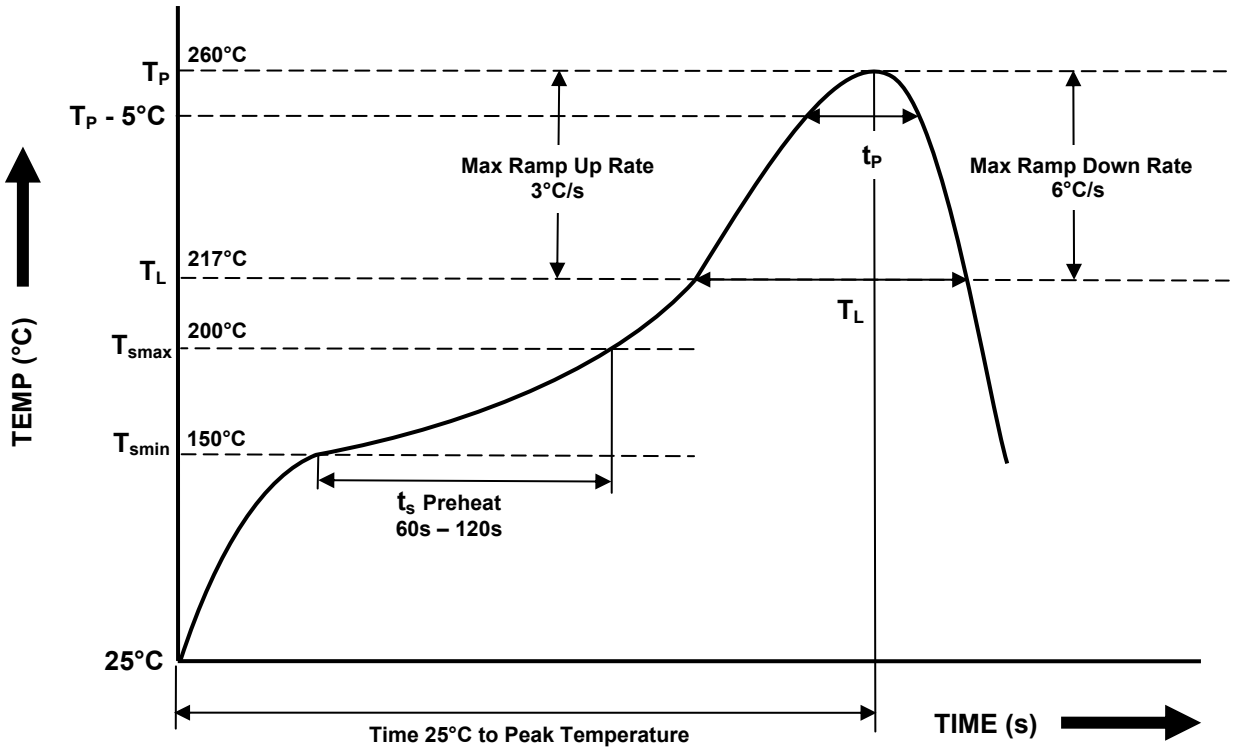


ISP827SMT&R



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)

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

DISCLAIMER

Isocom Components is continually working to improve the quality and reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing Isocom Components products, to comply with the standards of safety in making a safe design for the entire system, and to avoid situations in which a malfunction or failure of such Isocom Components products could cause loss of human life, bodily injury or damage to property.

In developing your designs, please ensure that Isocom Components products are used within specified operating ranges as set forth in the most recent Isocom Components products specifications.

The Isocom Components products listed in this document are intended for usage in general electronics applications (computer, personal equipment, office equipment, measuring equipment, industrial robotics, domestic appliances, etc.). These Isocom Components products are neither intended nor warranted for usage in equipment that requires extraordinarily high quality and/or reliability or a malfunction or failure of which may cause loss of human life or bodily injury (“Unintended Usage”). Unintended Usage include atomic energy control instruments, airplane or spaceship instruments, transportation Instruments, traffic signal instruments, combustion control instruments, medical Instruments, all types of safety devices, etc... Unintended Usage of Isocom Components products listed in this document shall be made at the customer’s own risk.

Gallium arsenide (GaAs) is a substance used in the products described in this document. GaAs dust and fumes are toxic. Do not break, cut or pulverize the product, or use chemicals to dissolve them. When disposing of the products, follow the appropriate regulations. Do not dispose of the products with other industrial waste or with domestic garbage.

The products described in this document are subject to the foreign exchange and foreign trade laws.

The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by Isocom Components for any infringements of intellectual property or other rights of the third parties which may result from its use. No license is granted by implication or otherwise under any intellectual property or other rights of Isocom Components or others.

The information contained herein is subject to change without notice.