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
Reverse Voltage	6V
Power dissipation	70mW
Output	
Collector to Emitter Voltage BV_{CEO}	55V
Emitter to Collector Voltage BV_{ECO}	6V
Collector Current	50mA
Power Dissipation	150mW
Total Package	
Isolation Voltage	$5300V_{RMS}$
Total Power Dissipation	200mW
Operating Temperature	-30 to 100 °C
Storage Temperature	-55 to 125 °C
Junction Temperature	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

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

INPUT

Parameter	Symbol	Test Condition	Min	Typ.	Max	Unit
Forward Voltage	V_F	I_F = 10mA	1.0	1.15	1.3	V
Reverse Voltage	V_R	I_R = 10µA	6.0			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 = 0.5mA, I_F = 0mA	55			V
Emitter—Collector breakdown Voltage	BV_{ECO}	I_E = 100µA, 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				
		GR	100		300	
		BL	200		600	
		GB	100		600	
		GB (I_F = 1mA, V_{CE} = 0.4V)	30			
Collector—Emitter Saturation Voltage	$V_{CE(sat)}$	I_F = 8mA, I_C = 2.4mA			0.4	V
		GB (I_F = 1mA, I_C = 0.2mA)			0.4	
Output Rise Time	t_r	V_{CE} = 2V, Ic = 2mA, R_L = 100Ω		4		µs
Output Fall Time	t_f			3		
Turn-on Time	t_{on}			3		
Turn-off Time	t_{off}			3		
Turn-on Time	t_{ON}	V_{CC}= 5V, I_F = 16mA, R_L = 1.9kΩ		2		µs
Turn-off Time	t_{OFF}			25		

ISOLATION

Parameter	Symbol	Test Condition	Min	Typ.	Max	Unit
Input to Output Isolation Voltage	V_{ISO}	R.H. = 40% to 60 %, t = 1 min	5300			V_{RMS}
Input to Output Resistance	R_{ISO}	V_{IO} = 500VDC, R.H. = 40% to 60 %,	5×10^{10}			Ω

Device is considered a two terminal device : Input pins are shorted together and Output pins are shorted together.

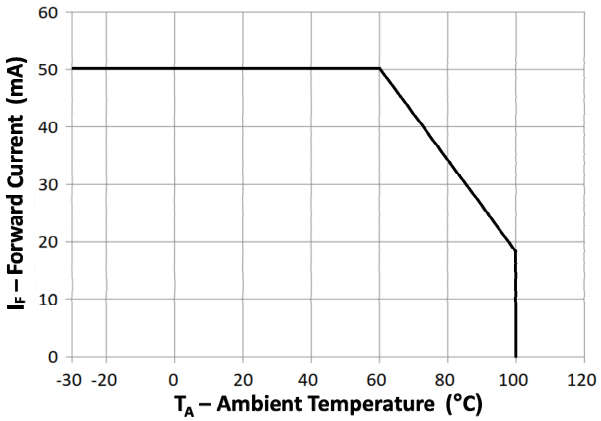


Fig 1 Forward Current vs T_A

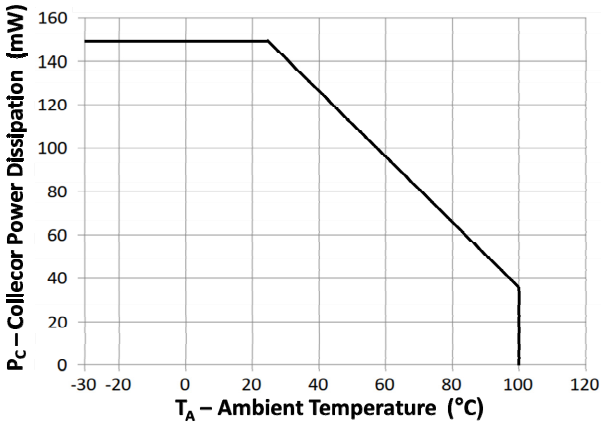


Fig 2 Collector Power Dissipation vs T_A

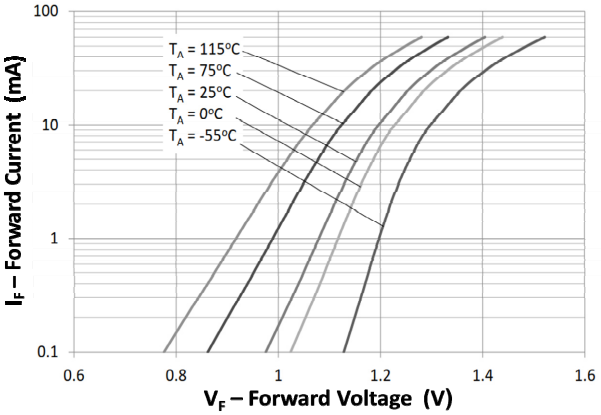


Fig 3 Forward Current vs Forward Voltage

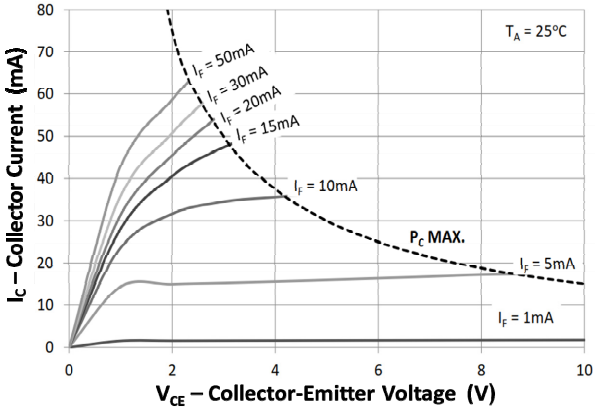


Fig 4 Collector Current vs Collector-Emitter Voltage

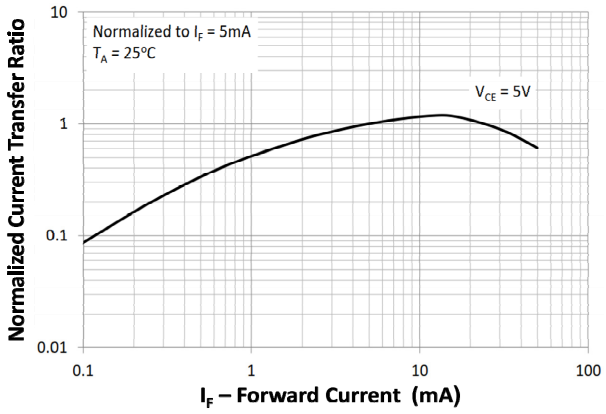


Fig 5 Normalized Current Transfer Ratio vs Forward Current

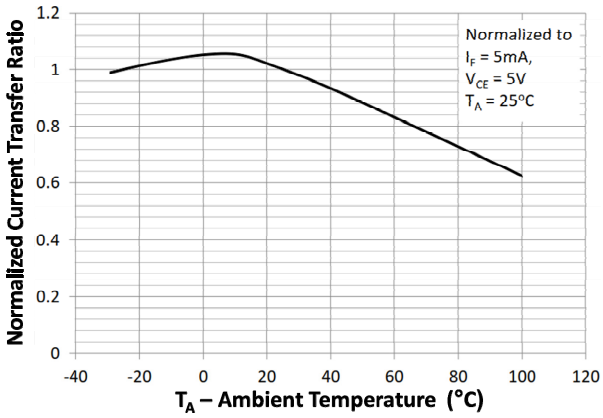


Fig 6 Normalized Current Transfer Ratio vs Ambient Temperature

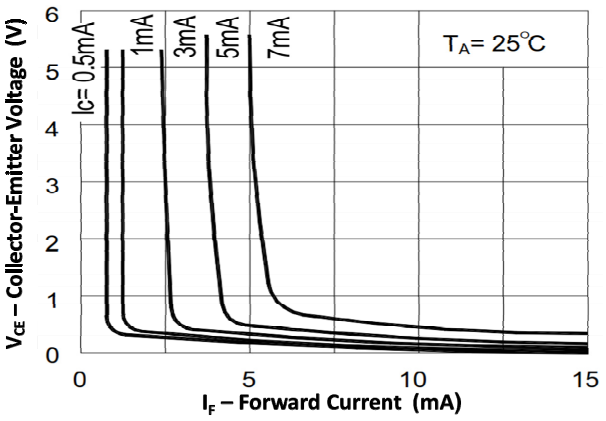


Fig 7 Collector-Emitter Voltage vs Forward Current

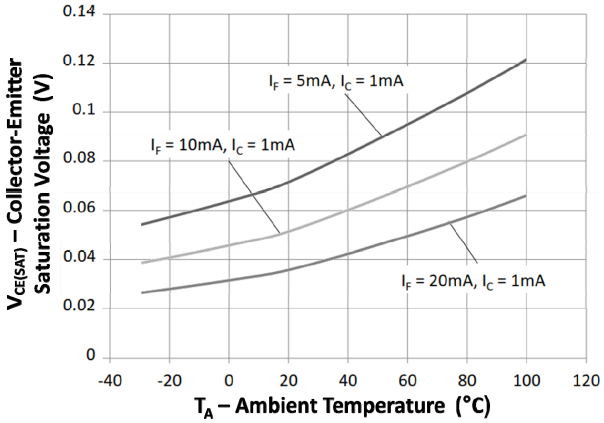


Fig 8 Collector-Emitter Voltage vs Ambient Temperature

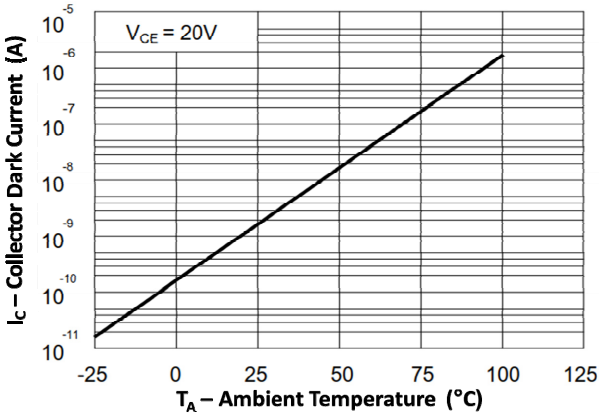


Fig 9 Collector Dark Current vs Ambient Temperture

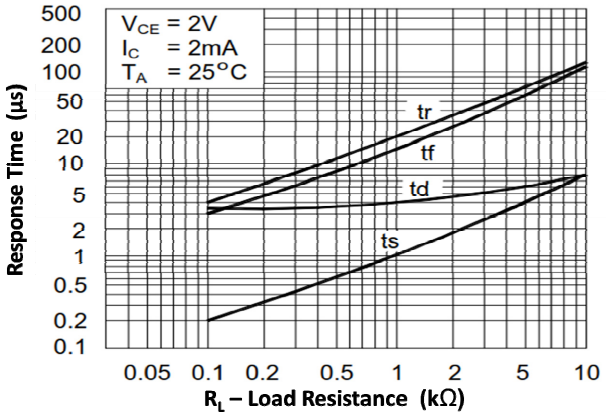
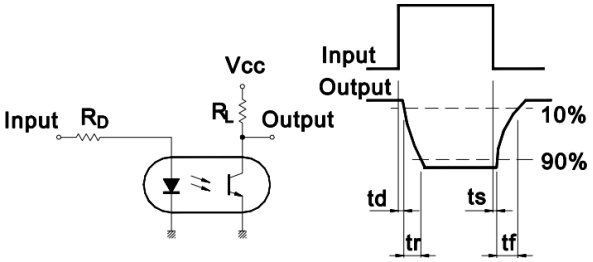


Fig 10 Response Time vs Load Resistance



Response Time Test Circuit

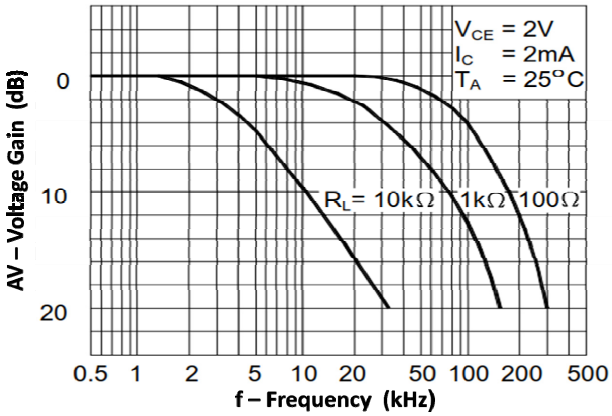
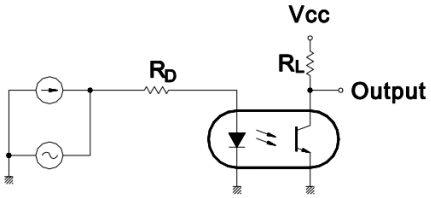


Fig 11 Frequency Response



Frequency Response Test Circuit

ORDER INFORMATION

TLP521, TLP521-1 (UL Approval)			
After PN	**PN**	**Description**	**Packing quantity**
None	TLP521, TLP521-1 TLP521GR, TLP521-1GR TLP521BL, TLP521-1BL, TLP521GB, TLP521-1GB	Standard DIP4	100 pcs per tube
G	TLP521G, TLP521-1G, TLP521GRG, TLP521-1GRG, TLP521BLG, TLP521-1BLG TLP521GBG, TLP521-1GBG	10mm Lead Spacing	100 pcs per tube
SM	TLP521SM, TLP521-1SM, TLP521GRSM, TLP521-1GRSM, TLP521BLSM, TLP521-1BLSM, TLP521GBSM, TLP521-1GBSM	Surface Mount	100 pcs per tube
SMT&R	TLP521SMT&R, TLP521-1SMT&R TLP521GRSMT&R, TLP521-1GRSMT&R, TLP521BLSMT&R, TLP521-1BLSMT&R, TLP521GBSMT&R, TLP521-1GBSMT&R	Surface Mount Tape & Reel	1000 pcs per reel

Note : Optional Order Part No. TLP521-1 for TLP521.

Devices with suffix “X” (UL and VDE approvals) may be supplied when ordering the above Part Numbers (UL approval only).

ORDER INFORMATION

TLP521-2 (UL Approval)			
After PN	**PN**	**Description**	**Packing quantity**
None	TLP521-2, TLP521-2GR, TLP521-2BL, TLP521-2GB	Standard DIP8	50 pcs per tube
G	TLP521-2G, TLP521-2GRG, TLP521-2BLG, TLP521-2GBG	10mm Lead Spacing	50 pcs per tube
SM	TLP521-2SM, TLP521-2GRSM, TLP521-2BLSM, TLP521-2GBSM	Surface Mount	50 pcs per tube
SMT&R	TLP521-2SMT&R, TLP521-2GRSMT&R, TLP521-2BLSMT&R, TLP521-2GBSMT&R	Surface Mount Tape & Reel	1000 pcs per reel

TLP521-4 (UL Approval)			
After PN	**PN**	**Description**	**Packing quantity**
None	TLP521-4, TLP521-4GR, TLP521-4BL, TLP521-4GB	Standard DIP16	25 pcs per tube
G	TLP521-4G, TLP521-4GRG, TLP521-4BLG, TLP521-4GBG	10mm Lead Spacing	25 pcs per tube
SM	TLP521-4SM, TLP521-4GRSM, TLP521-4BLSM, TLP521-4GBSM	Surface Mount	25 pcs per tube

Note : Devices with suffix “X” (UL and VDE approvals) may be supplied when ordering the above Part Numbers (UL approval only).

ORDER INFORMATION

TLP521X, TLP521-1X (UL and VDE Approvals)			
After PN	**PN**	**Description**	**Packing quantity**
None	TLP521X, TLP521-1X TLP521XGR, TLP521-1XGR TLP521XBL, TLP521-1XBL, TLP521XGB, TLP521-1XGB	Standard DIP4	100 pcs per tube
G	TLP521XG, TLP521-1XG, TLP521XGRG, TLP521-1XGRG, TLP521XBLG, TLP521-1XBLG TLP521XGBG, TLP521-1XGBG	10mm Lead Spacing	100 pcs per tube
SM	TLP521XSM, TLP521-1XSM, TLP521XGRSM, TLP521-1XGRSM, TLP521XBLSM, TLP521-1XBLSM, TLP521XGBSM, TLP521-1XGBSM	Surface Mount	100 pcs per tube
SMT&R	TLP521XSMT&R, TLP521-1XSMT&R TLP521XGRSMT&R, TLP521-1XGRSMT&R, TLP521XBLSMT&R, TLP521-1XBLSMT&R, TLP521XGBSMT&R, TLP521-1XGBSMT&R	Surface Mount Tape & Reel	1000 pcs per reel

Note : Optional Order Part No. TLP521-1X for TLP521X.

ORDER INFORMATION

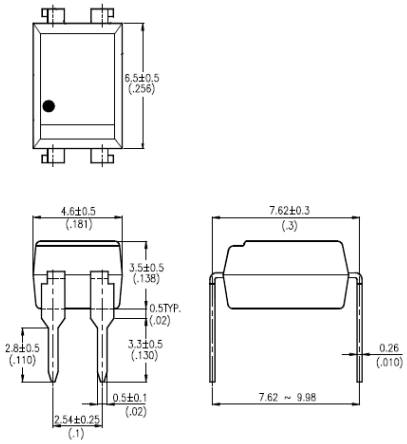
TLP521-2X (UL and VDE Approvals)			
After PN	**PN**	**Description**	**Packing quantity**
None	TLP521-2X, TLP521-2XGR, TLP521-2XBL, TLP521-2XGB	Standard DIP8	50 pcs per tube
G	TLP521-2XG, TLP521-2XGRG TLP521-2XBLG, TLP521-2XGBG	10mm Lead Spacing	50 pcs per tube
SM	TLP521-2XSM, TLP521-2XGRSM, TLP521-2XBLSM, TLP521-2XGBSM	Surface Mount	50 pcs per tube
SMT&R	TLP521-2XSMT&R, TLP521-2XGRSMT&R, TLP521-2XBLSMT&R, TLP521-2XGBSMT&R	Surface Mount Tape & Reel	1000 pcs per reel

TLP521-4X (UL and VDE Approvals)			
After PN	**PN**	**Description**	**Packing quantity**
None	TLP521-4X, TLP521-4XGR, TLP521-4XBL, TLP521-4XGB	Standard DIP16	25 pcs per tube
G	TLP521-4XG, TLP521-4XGRG, TLP521-4XBLG, TLP521-4XGBG	10mm Lead Spacing	25 pcs per tube
SM	TLP521-4XSM, TLP521-4XGRSM, TLP521-4XBLSM, TLP521-4XGBSM	Surface Mount	25 pcs per tube

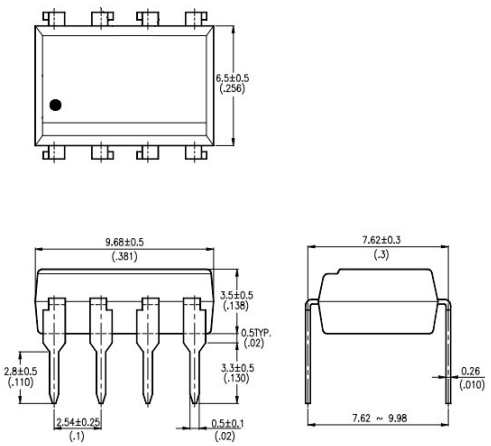
PACKAGE DIMENSIONS in mm (inch)

DIP

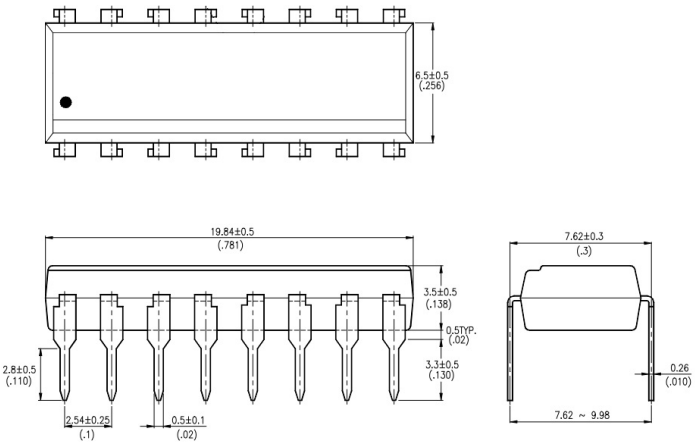
TLP521



TLP521-2



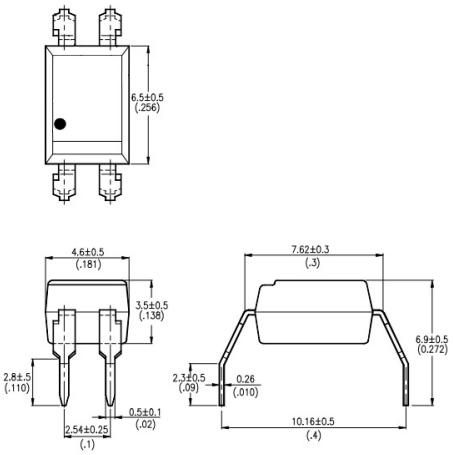
TLP521-4



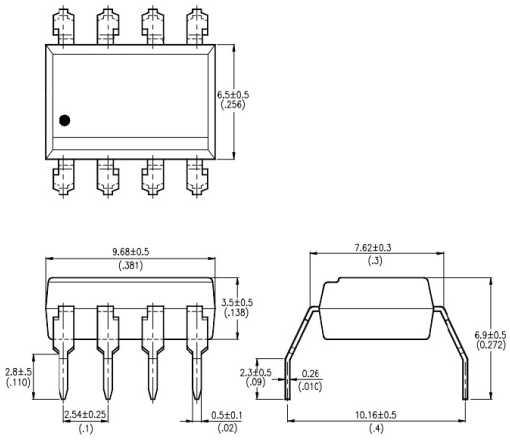
PACKAGE DIMENSIONS in mm (inch)

G Form

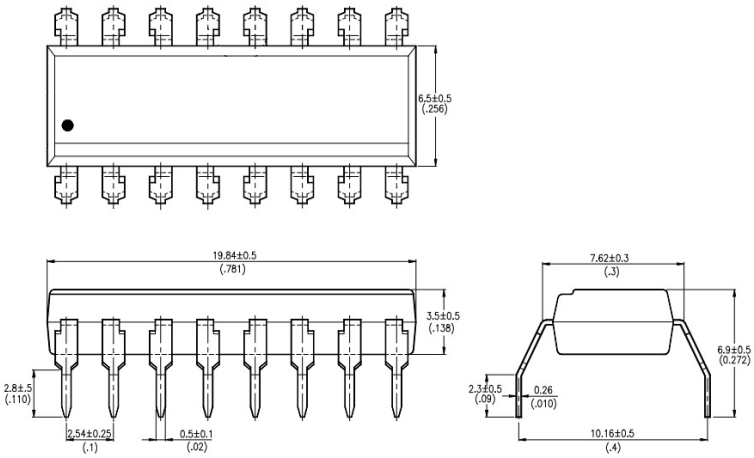
TLP521G



TLP521-2G



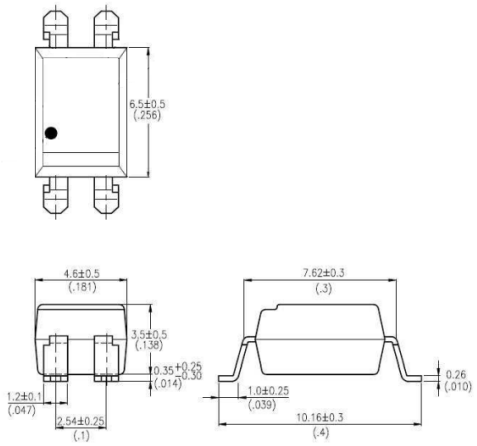
TLP521-4G



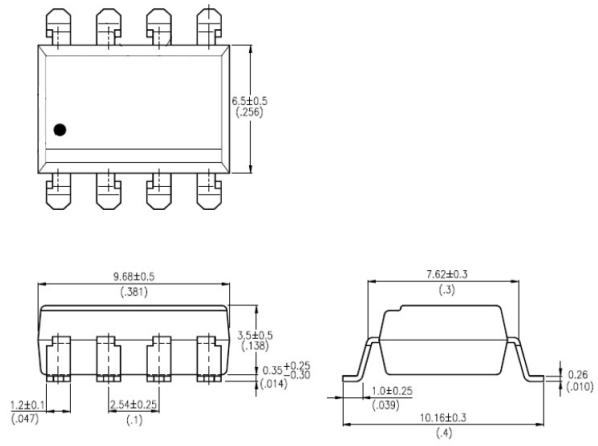
PACKAGE DIMENSIONS in mm (inch)

SMD

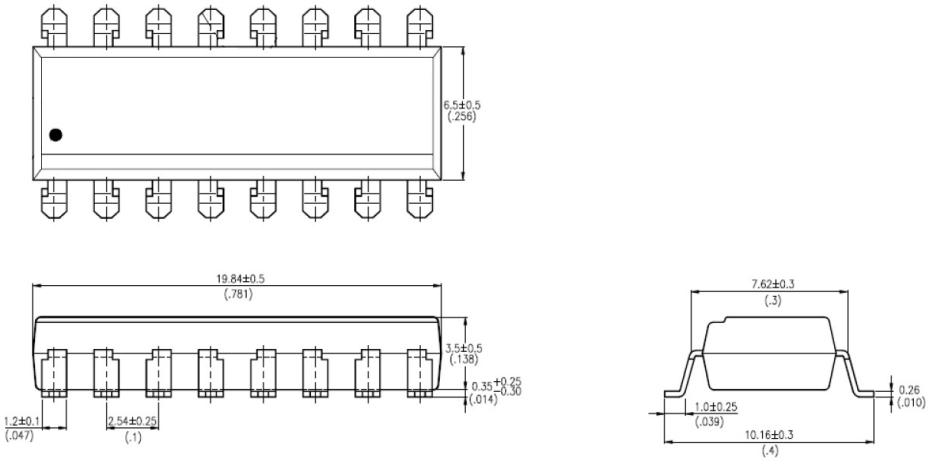
TLP521SM



TLP521-2SM

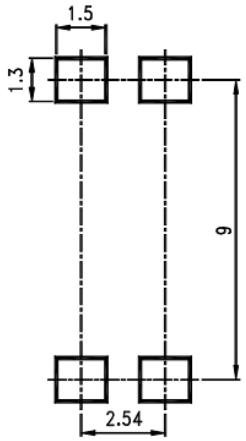


TLP521-4SM

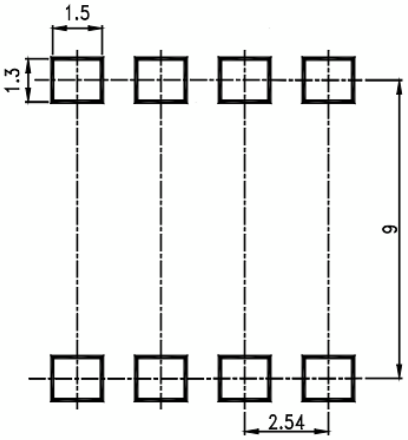


RECOMMENDED PAD LAYOUT FOR SMD (mm)

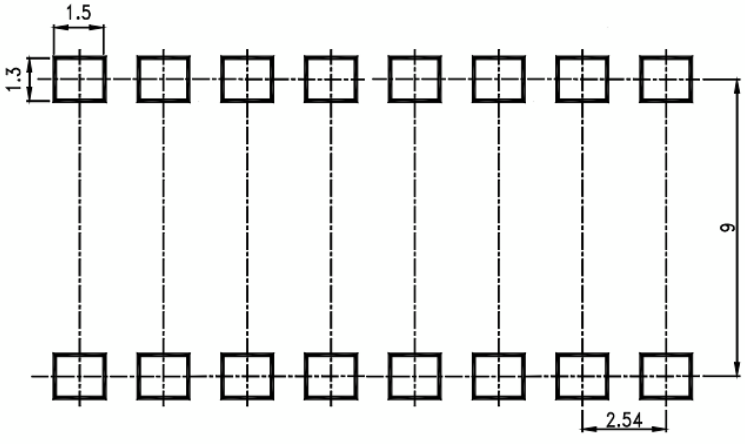
TLP521SM



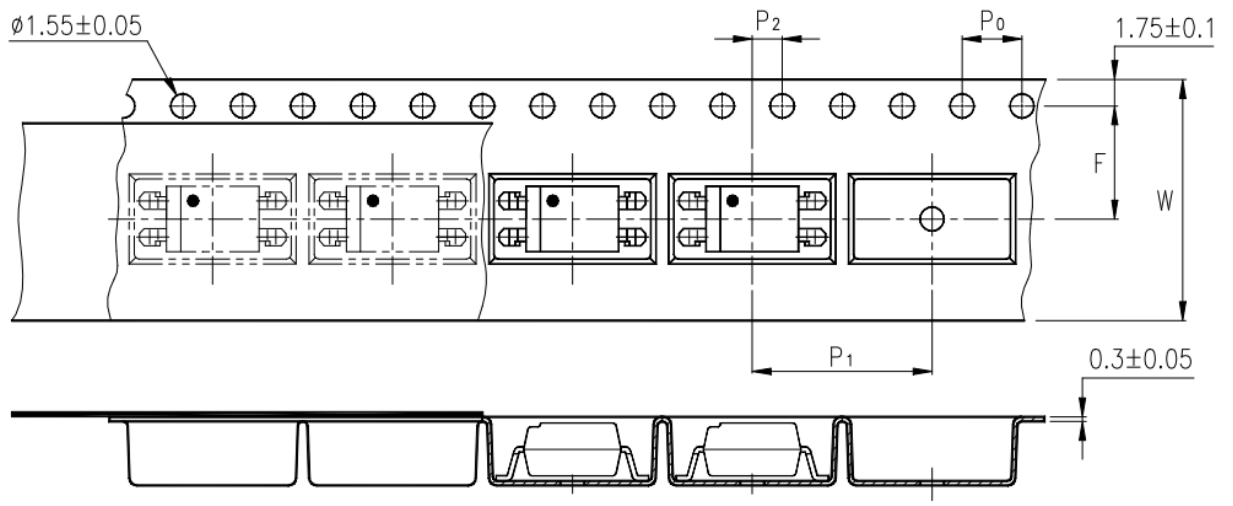
TLP521-2SM



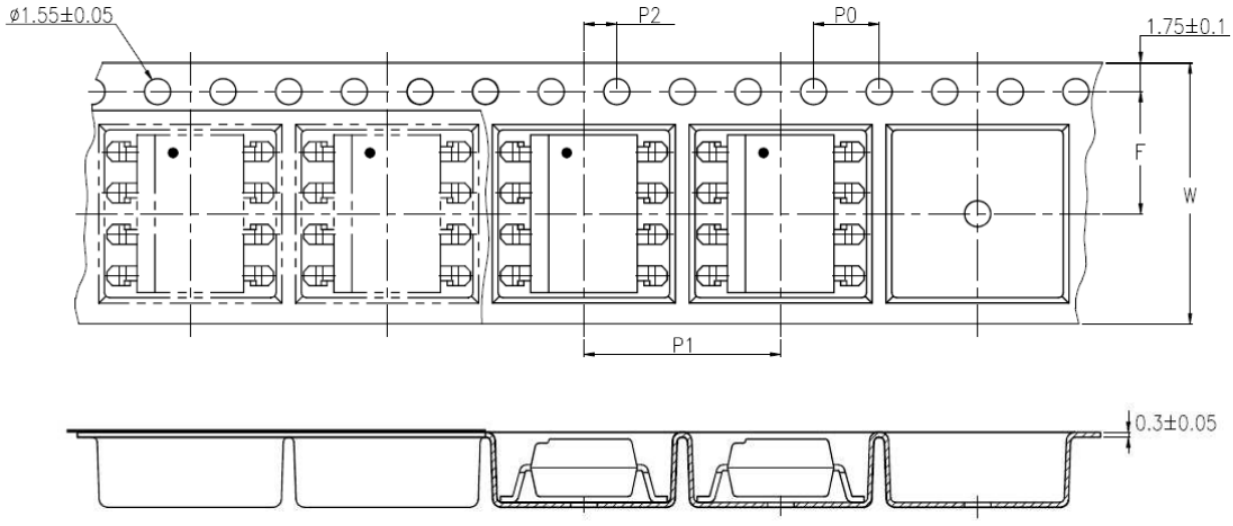
TLP521-4SM



TAPE AND REEL PACKAGING



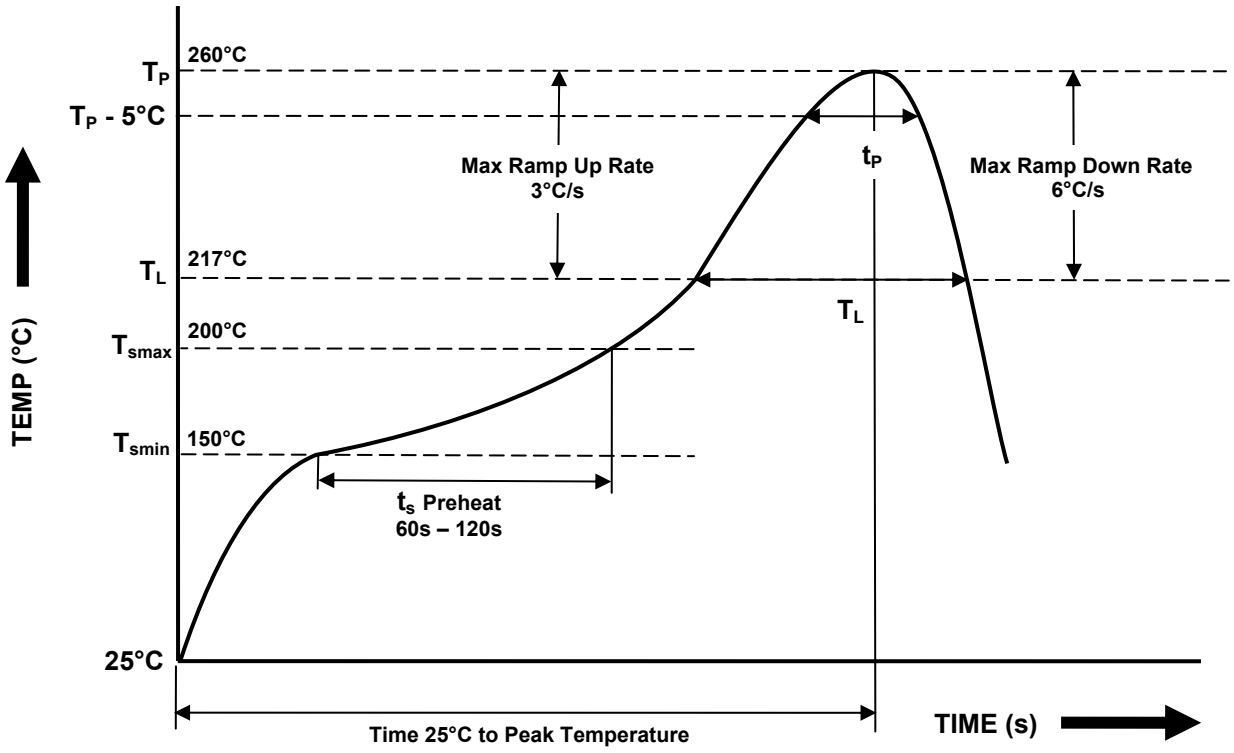
TLP521SMT&R



TLP521-2SMT&R

Description	Symbol	Dimensions in mm (inches)
Tape wide	W	16 ± 0.3 (.63)
Pitch of sprocket holes	P_0	4 ± 0.1 (.15)
Distance of compartment	F P_2	7.5 ± 0.1 (.295) 2 ± 0.1 (.079)
Distance of compartment to compartment	P_1	12 ± 0.1 (.472)

IR REFLOW SOLDERING TEMPERATURE PROFILE FOR SMD
(One Time Reflow Soldering is Recommended)



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

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