

## TLP621, TLP621-2, TLP621-4

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

#### INPUT

Parameter	Symbol	Test Condition	Min	Typ.	Max	Unit
Forward Voltage	$V_F$	$I_F = 10\text{mA}$	1.0	1.15	1.3	V
Reverse Voltage	$V_R$	$I_R = 10\mu\text{A}$	5.0			V
Reverse Leakage	$I_R$	$V_R = 5\text{V}$			10	$\mu\text{A}$
Terminal Capacitance	$C_t$	$V = 0\text{V}, f = 1\text{KHz}$		30	250	pF

#### OUTPUT

Parameter	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector—Emitter breakdown Voltage	$BV_{CEO}$	$I_C = 0.5\text{mA}, I_F = 0\text{mA}$	55			V
Emitter—Collector breakdown Voltage	$BV_{ECO}$	$I_E = 100\mu\text{A}, I_F = 0\text{mA}$	6			V
Collector-Emitter Dark Current	$I_{CEO}$	$V_{CE} = 24\text{V}, I_F = 0\text{mA}$			100	nA

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#### COUPLED

Parameter	Symbol	Test Condition	Min	Typ.	Max	Unit
Current Transfer Ratio	CTR	$I_F = 5\text{mA}$ , $V_{CE} = 5\text{V}$	50		600	%
		Optional CTR Grades				
		GR	100		300	
		BL	200		600	
		GB	100		600	
		GB ( $I_F = 1\text{mA}$ , $V_{CE} = 0.4\text{V}$ )	30			
Collector—Emitter Saturation Voltage	$V_{CE(sat)}$	$I_F = 8\text{mA}$ , $I_C = 2.4\text{mA}$ GB ( $I_F = 1\text{mA}$ , $I_C = 0.2\text{mA}$ )			0.4 0.4	V
Output Rise Time	$t_r$	$V_{CE} = 10\text{V}$ , $I_C = 2\text{mA}$ , $R_L = 100\Omega$		2		$\mu\text{s}$
Output Fall Time	$t_f$			3		
Turn-on Time	$t_{on}$			3		
Turn-off Time	$t_{off}$			3		

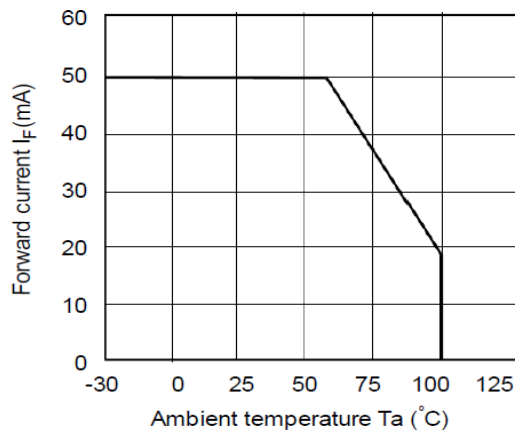
#### ISOLATION

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	$R_{ISO}$	$V_{IO} = 500\text{V}$ Note 1	$5 \times 10^{10}$			$\Omega$

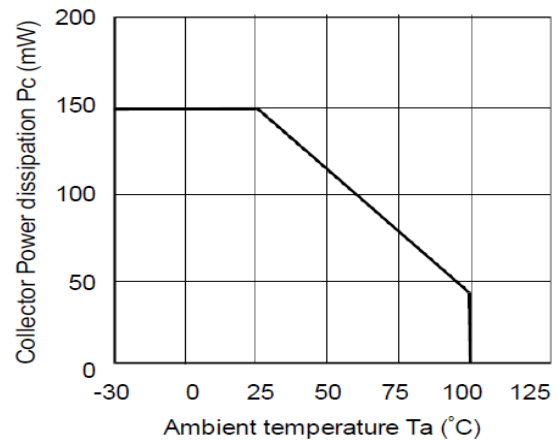
Note 1 : Measure with input leads shorted together and output leads shorted together.



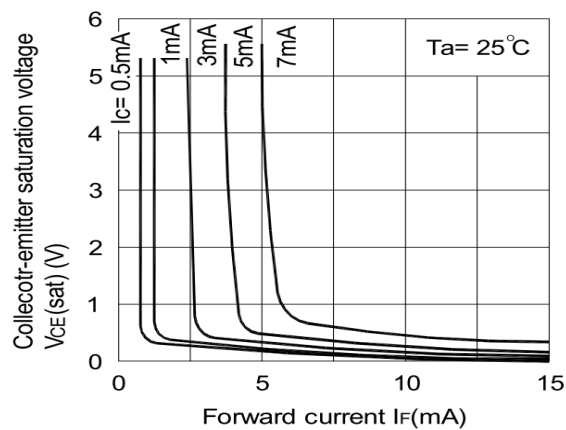
## TLP621, TLP621-2, TLP621-4



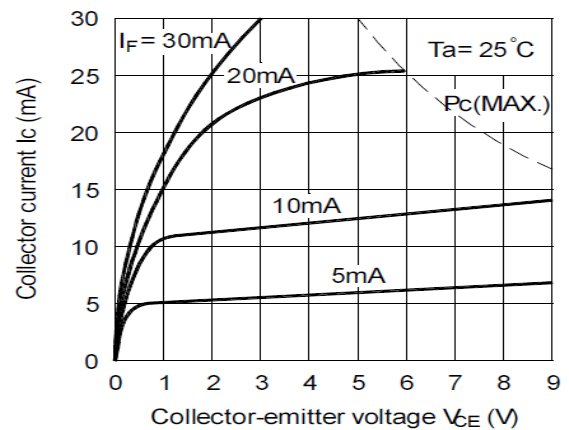
**Fig 1 Forward Current vs  $T_A$**



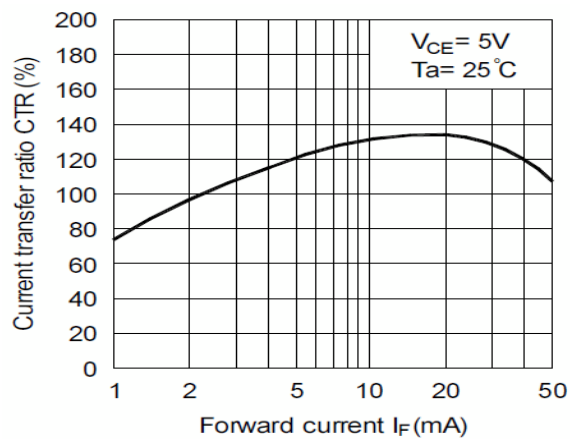
**Fig 2 Collector Power Dissipation vs  $T_A$**



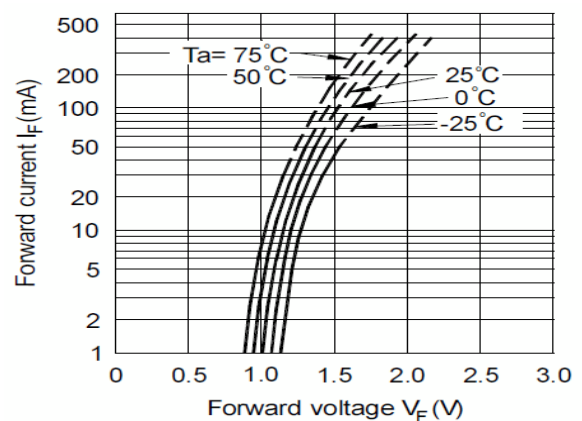
**Fig 3 Collector-emitter Saturation Voltage vs Forward Current**



**Fig 4 Collector Current vs Collector-emitter Voltage**



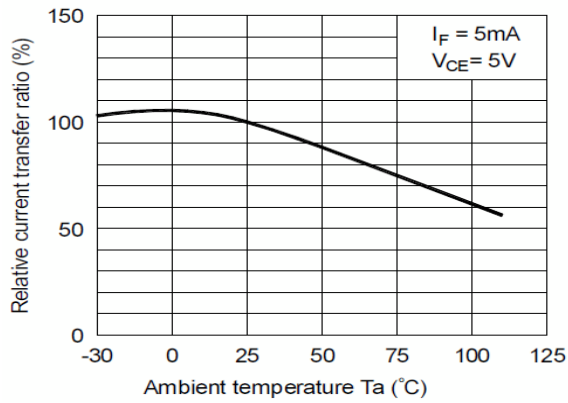
**Fig 5 Current Transfer Ratio vs Forward Current**



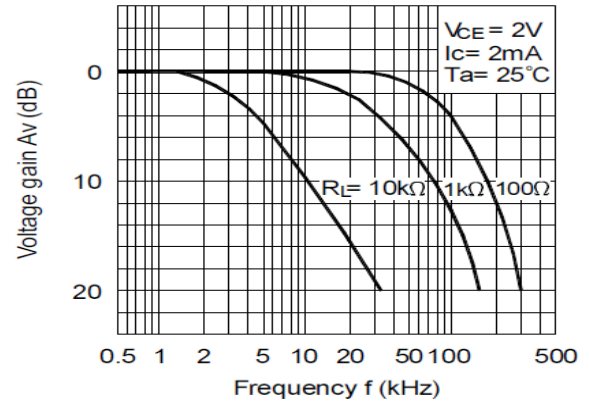
**Fig 6 Forward Current vs Forward Voltage**



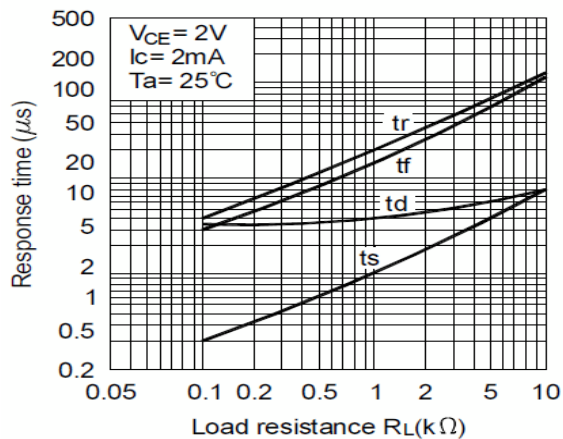
## TLP621, TLP621-2, TLP621-4



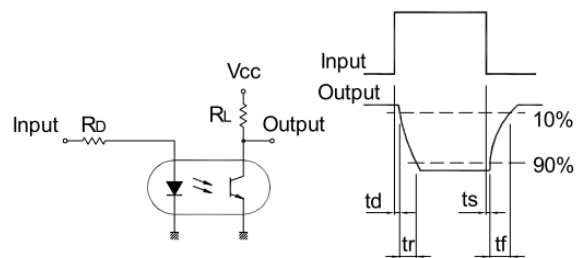
**Fig 7 Relative CTR vs  $T_A$**



**Fig 8 Frequency Response**



**Fig 9 Response Time vs Load Resistance**



**Response Time Test Circuit**

## TLP621, TLP621-2, TLP621-4

### ORDER INFORMATION

TLP621 (UL Approval)			
After PN	PN	Description	Packing quantity
None	TLP621, TLP621GR, TLP621BL, TLP621GB	Standard DIP4	100 pcs per tube
G	TLP621G, TLP621GRG, TLP621BLG, TLP621GBG	10mm Lead Spacing	100 pcs per tube
SM	TLP621SM, TLP621GRSM, TLP621BLSM, TLP621GBSM	Surface Mount	100 pcs per tube
SMT&R	TLP621SMT&R, TLP621GRSMT&R, TLP621BLSMT&R, TLP621GBSMT&R	Surface Mount Tape & Reel	1000 pcs per reel

TLP621-2 (UL Approval)			
After PN	PN	Description	Packing quantity
None	TLP621-2, TLP621-2GR, TLP621-2BL, TLP621-2GB	Standard DIP8	50 pcs per tube
G	TLP621-2G, TLP621-2GRG, TLP621-2BLG, TLP621-2GBG	10mm Lead Spacing	50 pcs per tube
SM	TLP621-2SM, TLP621-2GRSM, TLP621-2BLSM, TLP621-2GBSM	Surface Mount	50 pcs per tube
SMT&R	TLP621-2SMT&R, TLP621-2GRSMT&R, TLP621-2BLSMT&R, TLP621-2GBSMT&R	Surface Mount Tape & Reel	1000 pcs per reel

TLP621-4 (UL Approval)			
After PN	PN	Description	Packing quantity
None	TLP621-4, TLP621-4GR, TLP621-4BL, TLP621-4GB	Standard DIP16	25 pcs per tube
G	TLP621-4G, TLP621-4GRG, TLP621-4BLG, TLP621-4GBG	10mm Lead Spacing	25 pcs per tube
SM	TLP621-4SM, TLP621-4GRSM, TLP621-4BLSM, TLP621-4GBSM	Surface Mount	25 pcs per tube

## TLP621, TLP621-2, TLP621-4

### ORDER INFORMATION

TLP621X (UL and VDE Approvals)			
After PN	PN	Description	Packing quantity
None	TLP621X, TLP621XGR, TLP621XBL, TLP621XGB	Standard DIP4	100 pcs per tube
G	TLP621XG, TLP621XGRG, TLP621XBLG, TLP621XGBG	10mm Lead Spacing	100 pcs per tube
SM	TLP621XSM, TLP621XGRSM, TLP621XBLSM, TLP621XGBSM	Surface Mount	100 pcs per tube
SMT&R	TLP621XSMT&R, TLP621XGRSMT&R, TLP621XBLSMT&R, TLP621XGBXSMT&R	Surface Mount Tape & Reel	1000 pcs per reel

TLP621-2X (UL and VDE Approvals)			
After PN	PN	Description	Packing quantity
None	TLP621-2X, TLP621-2XGR, TLP621-2XBL, TLP621-2XGB	Standard DIP8	50 pcs per tube
G	TLP621-2XG, TLP621-2XGRG, TLP621-2XBLG, TLP621-2XGBG	10mm Lead Spacing	50 pcs per tube
SM	TLP621-2XSM, TLP621-2XGRSM, TLP621-2XBLSM, TLP621-2XGBSM	Surface Mount	50 pcs per tube
SMT&R	TLP621-2XSMT&R, TLP621-2XGRSMT&R, TLP621-2XBLSMT&R, TLP621-2XGBSMT&R	Surface Mount Tape & Reel	1000 pcs per reel

TLP621-4X (UL and VDE Approvals)			
After PN	PN	Description	Packing quantity
None	TLP621-4X, TLP621-4XGR, TLP621-4XBL, TLP621-4XGB	Standard DIP16	25 pcs per tube
G	TLP621-4XG, TLP621-4XGRG, TLP621-4XBLG, TLP621-4XGBG	10mm Lead Spacing	25 pcs per tube
SM	TLP621-4XSM, TLP621-4XGRSM, TLP621-4XBLSM, TLP621-4XGBSM	Surface Mount	25 pcs per tube



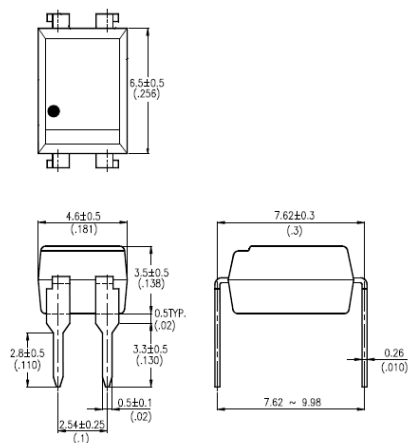
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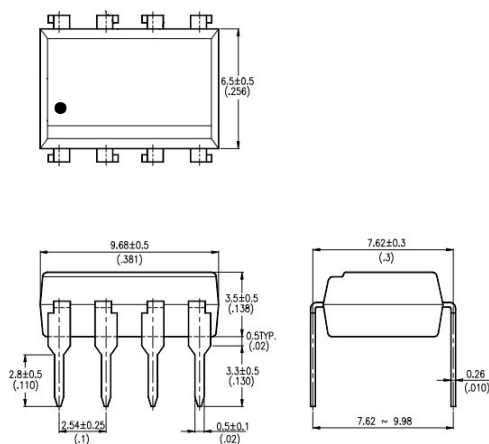
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#### DIP

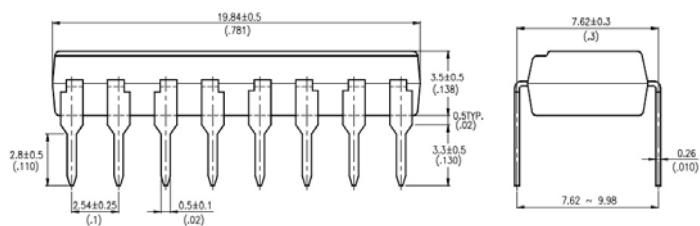
##### TLP621



##### TLP621-2



##### TLP621-4



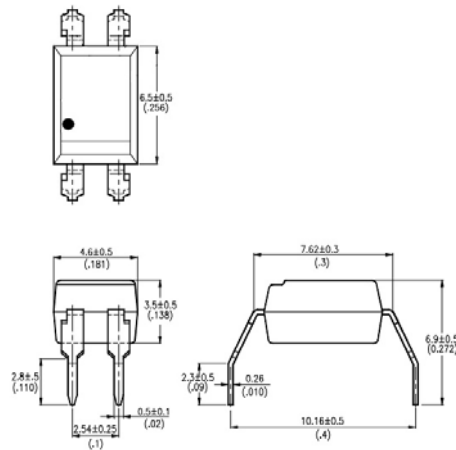


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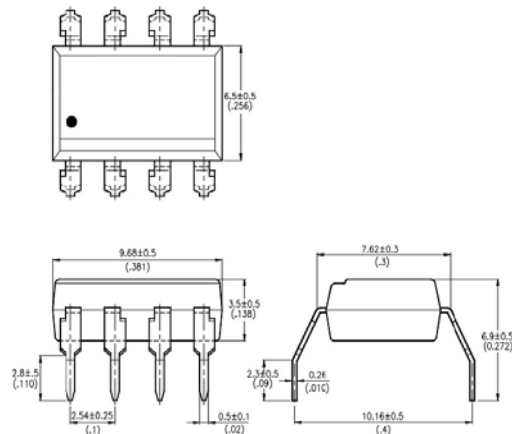
### PACKAGE DIMENSIONS in mm (inch)

#### G Form

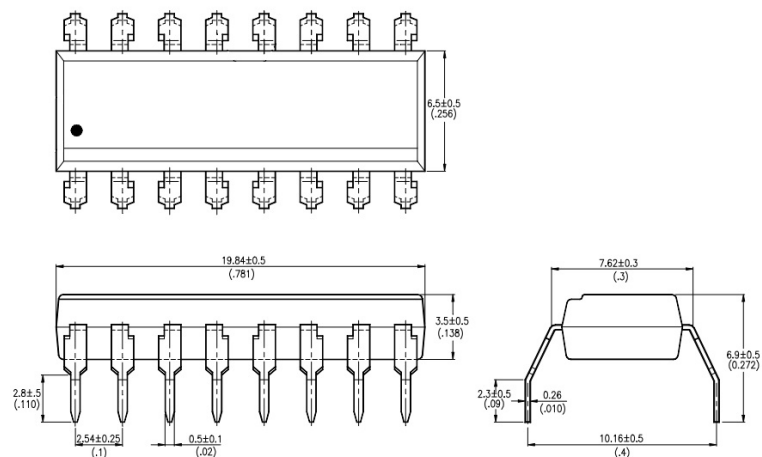
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##### TLP621-2G



##### TLP621-4G







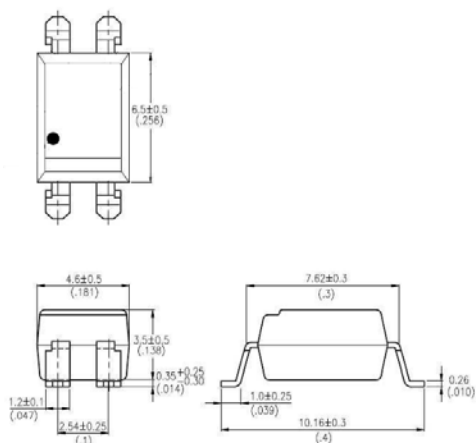
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## TLP621, TLP621-2, TLP621-4

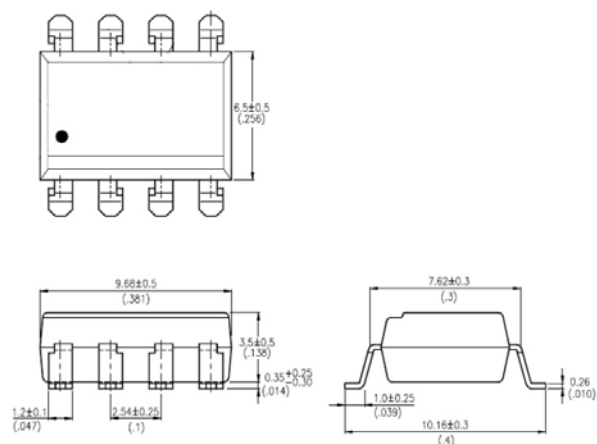
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#### SMD

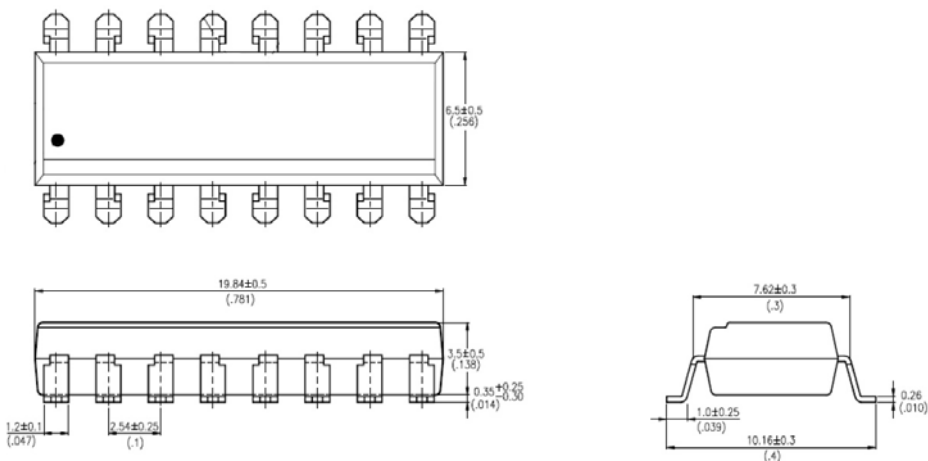
##### TLP621SM



##### TLP621-2SM



##### TLP621-4SM

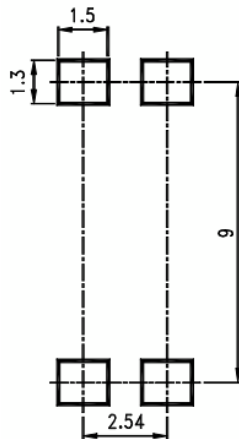




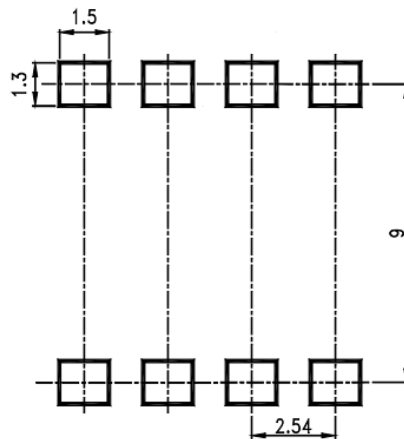
## TLP621, TLP621-2, TLP621-4

### RECOMMENDED PAD LAYOUT FOR SMD (mm)

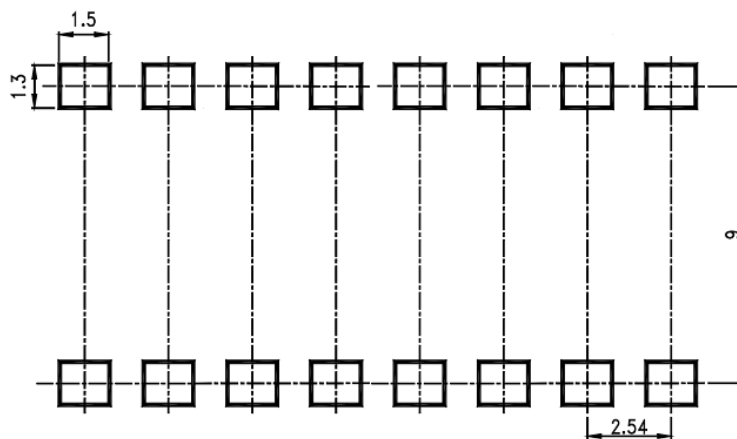
**TLP621SM**



**TLP621-2SM**



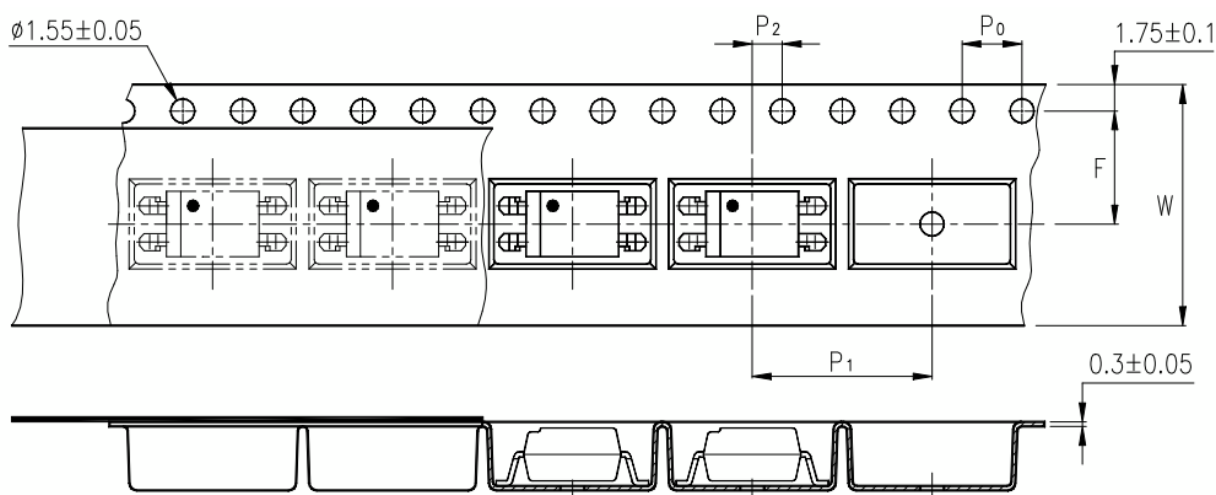
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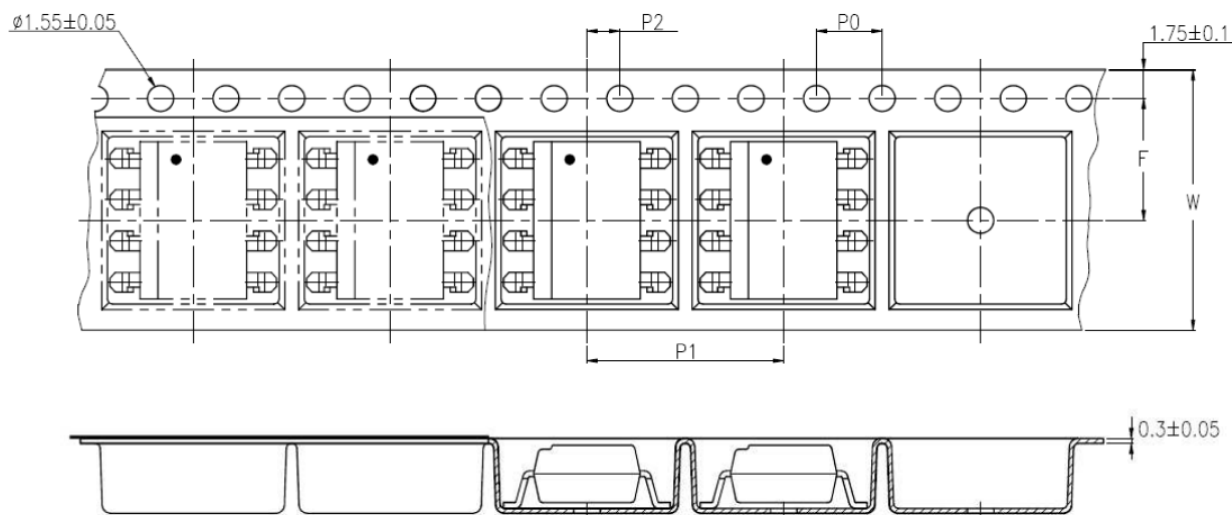


## TLP621, TLP621-2, TLP621-4

### TAPE AND REEL PACKAGING



### TLP621SMT&R



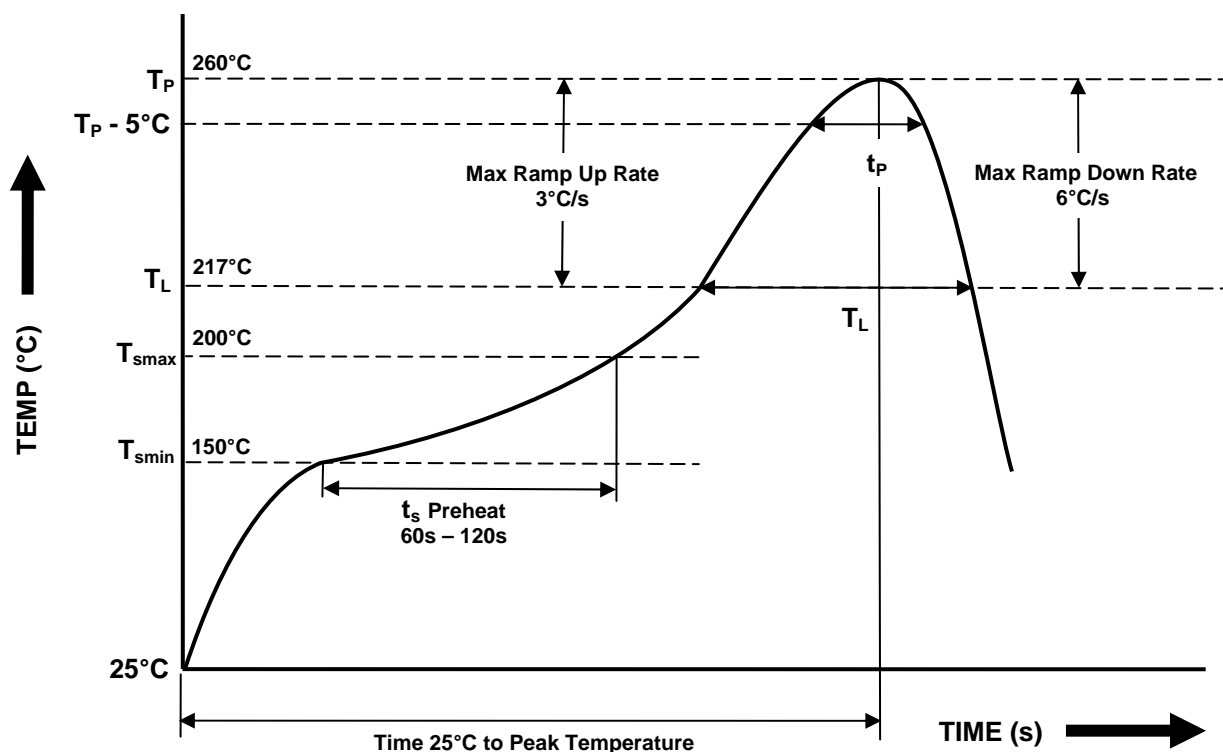
### TLP621-2SMT&R

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



## TLP621, TLP621-2, TLP621-4

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



Profile Details	Conditions
<b>Preheat</b> <ul style="list-style-type: none"><li>- Min Temperature (<math>T_{SMIN}</math>)</li><li>- Max Temperature (<math>T_{SMAX}</math>)</li><li>- Time <math>T_{SMIN}</math> to <math>T_{SMAX}</math> (<math>t_s</math>)</li></ul>	150°C 200°C 60s - 120s
<b>Soldering Zone</b> <ul style="list-style-type: none"><li>- Peak Temperature (<math>T_P</math>)</li><li>- Time at Peak Temperature</li><li>- Liquidous Temperature (<math>T_L</math>)</li><li>- Time within 5°C of Actual Peak Temperature (<math>T_P - 5^\circ\text{C}</math>)</li><li>- Time maintained above <math>T_L</math> (<math>t_L</math>)</li><li>- Ramp Up Rate (<math>T_L</math> to <math>T_P</math>)</li><li>- Ramp Down Rate (<math>T_P</math> to <math>T_L</math>)</li></ul>	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



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