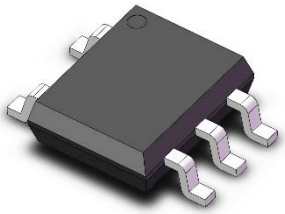
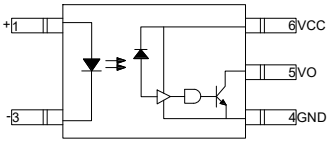
JOCHA14B-M5

Rev.A.1.0

The products are 10MBd high-speed opto-couplers in the SOP5 package. The device consists of a high efficient AlGaAs Light Emitting Diode and a high speed optical detector. This design provides excellent AC and DC isolation between the input and output sides of the optocoupler. The output of the optical detector features an open collector Schottky clamped transistor. The enable function allows the optical detector to be strobed. A guaranteed common mode transient immunity is up to 10kV/μs at 3.3V. The optocoupler operational parameters are guaranteed over the temperature range from -40 . The products are widely used in isolation in line receivers, digital isolation for A/D,D/A conversion, ground loop elimination, feedback element in switching mode power supplier, pulse transformer replacement, power transistor isolation in motor drives, interface between microprocessor system, computer and their peripheral.





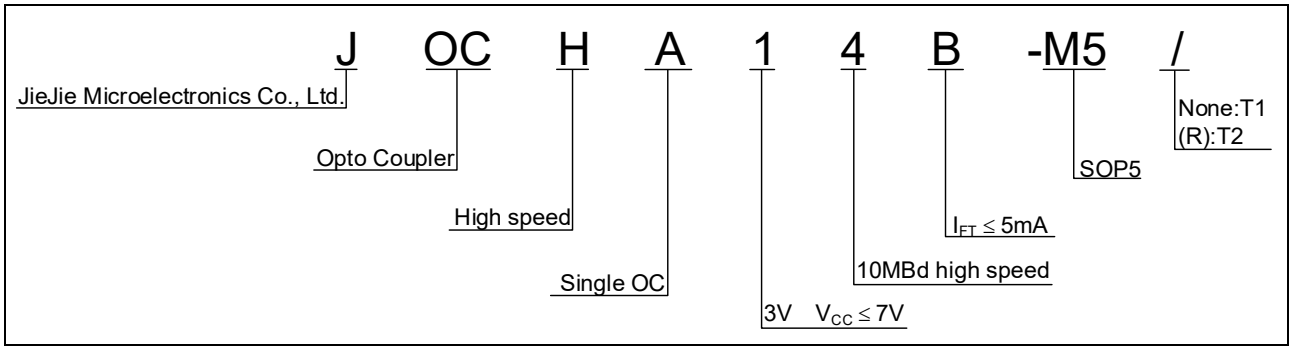
High isolation 3750 VRMS
High speed – 10MBd typical
Operating temperature range -40°C to 110°C
REACH & RoHS compliance
HBM: H3A; MM: M4; CDM: C3
CQC approved
VDE approved
UL approved

INPUT	OUTPUT
H	L
L	H

	Isolation Resistance	R_{ISO}	DC500V 40~60%R.H.	-	10^{12}	-	Ω
	Floating Capacitance	C_{IO}	V=0, f=1MHz	-	1	-	pF
Switching Characteristics	Trigger LED Current	I_{FT}	V_{CC}=5V, V_O=V_{OL}	-	-	5	mA
	Propagation Delay Time to Logic Low	t_{PHL}	C_L=15pF, R_L=350Ω, I_F=7.5mA	-	-	60	ns
	Propagation Delay Time to Logic High	t_{PLH}		-	-	60	ns
	Pulse width distortion	$\|t_{PHL}-t_{PLH}\|$		-	-	35	ns
	Common Mode Transient Immunity at Logic High	CM_H	V_{CC}=3.3V, I_F=0mA, V_{CM}=1000V, R_L=350Ω	10	15	-	kV/μs
	Common Mode Transient Immunity at Logic Low	CM_L	V_{CC}=3.3V, I_F=10mA, V_{CM}=1000V, R_L=350Ω	10	15	-	kV/μs
	Rise Time	tr	C_L=15pF, R_L=350Ω, I_F=7.5mA	-	30	-	ns
	Fall Time	tf		-	30	-	ns

Characteristics	Symbol	Min.	Typ.	Max.	Unit
Operating Temperature	T_a	-40	-	85	
Supply Voltage	V_{CC}	2.7	-	3.6	V
		4.5	-	5.5	
Low Level Input Current	I_{FL}	0	-	250	μA
High Level Input Current	I_{FH}	7	-	15	mA

Output Pull-up Resistor	R_L	330	-	4k	Ω
Fan Out (at R_L=1kΩ per channel)	N	-	-	5	TTL Loads



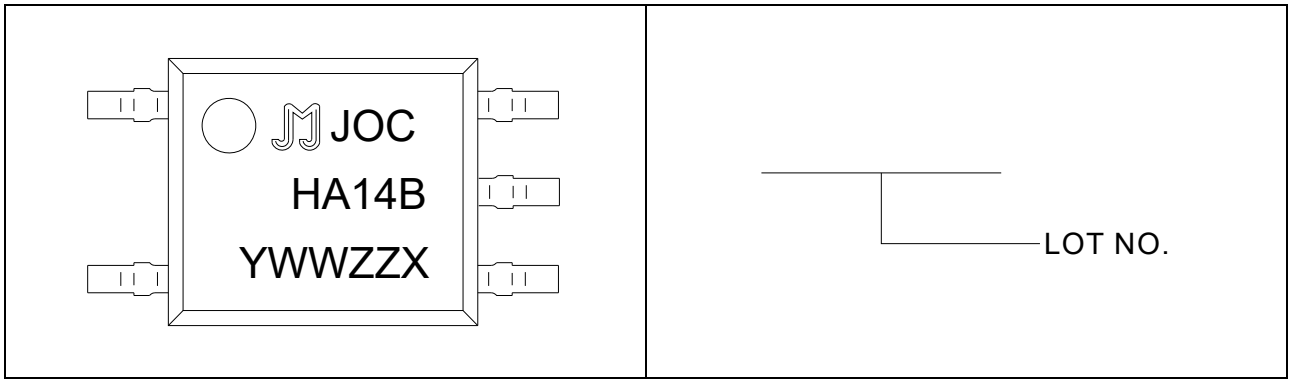


FIG.1: High Level Output Current vs. Ambient Temperature

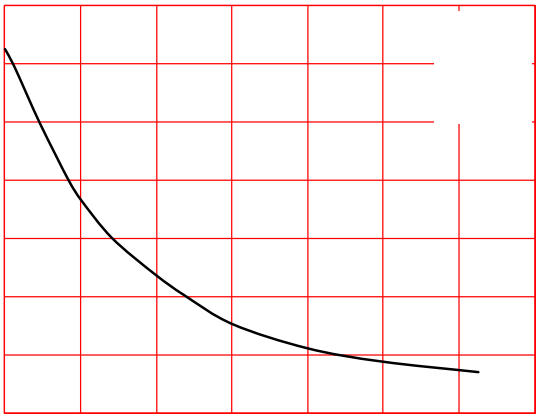


FIG.2: High Level Output Current vs. Ambient Temperature

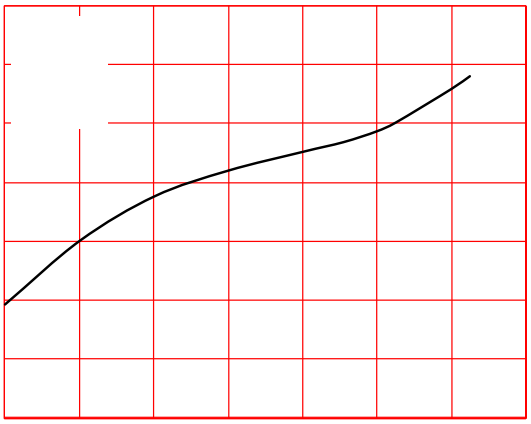


FIG.3: Input Threshold Current vs. Ambient Temperature

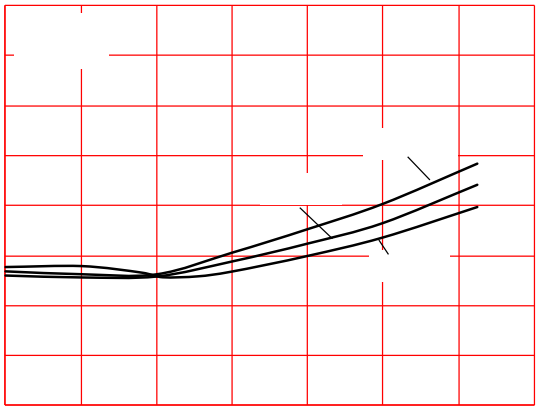


FIG.4: Input Threshold Current vs. Ambient Temperature

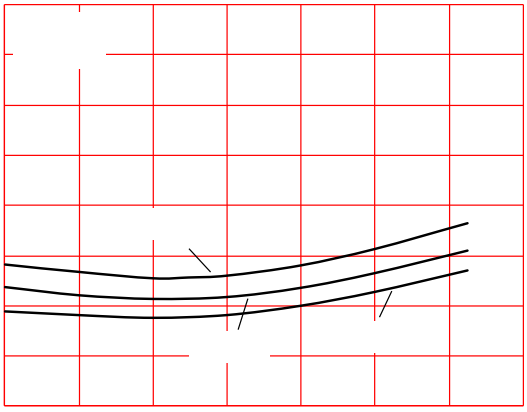


FIG.5: Low Level Output Voltage vs. Ambient Temperature

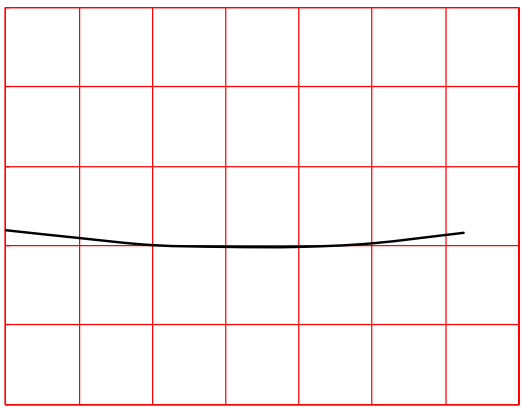


FIG.6: Low Level Output Voltage vs. Ambient Temperature

FIG.7: Low Level Output Current vs. Ambient Temperature

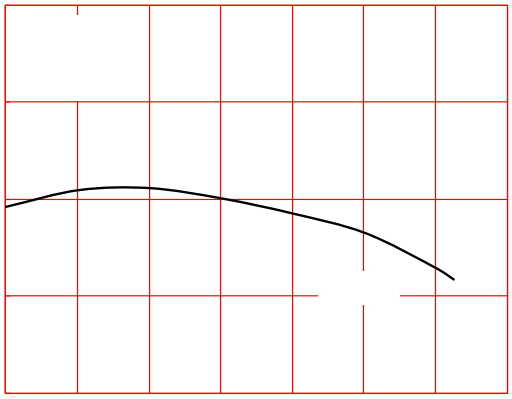


FIG.8: Low Level Output Current vs. Ambient Temperature

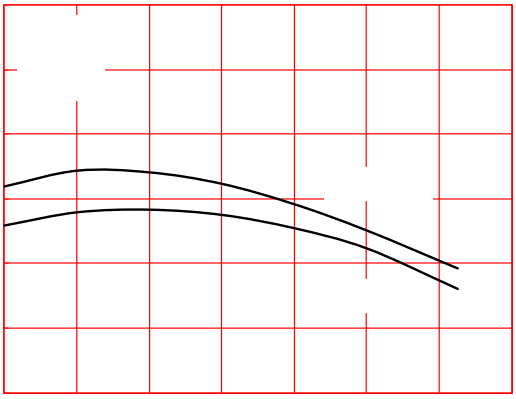


FIG.9: Input Forward Voltage vs. Input Forward Current

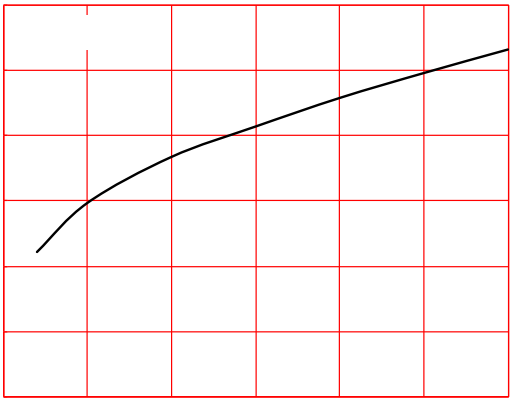


FIG.10: Forward Voltage vs. Ambient Temperature

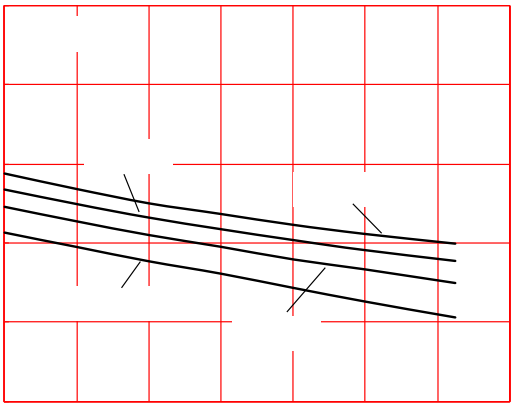


FIG.11: Propagation Delay vs. Ambient Temperature

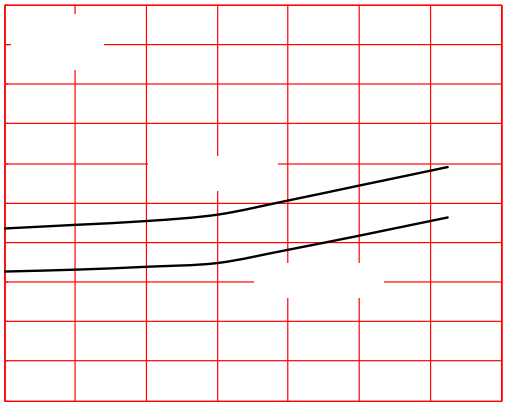


FIG.12: Propagation Delay vs. Ambient Temperature

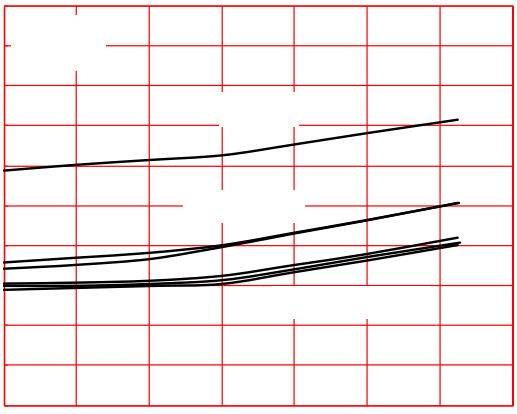


FIG.13: Pulse Width Distortion vs. Ambient Temperature

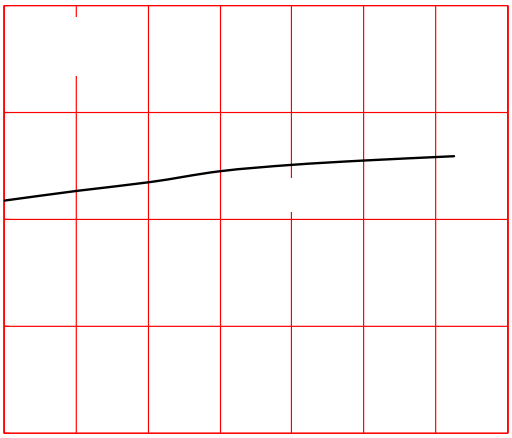


FIG.14: Pulse Width Distortion vs. Ambient Temperature

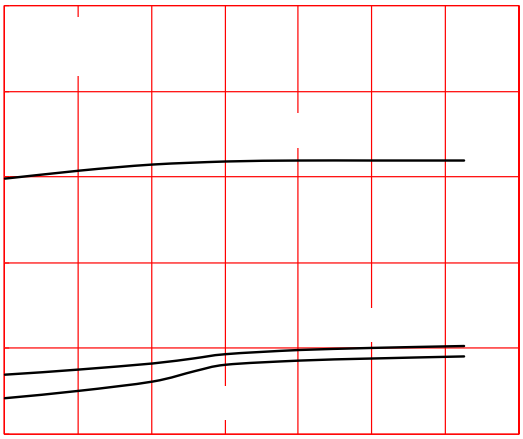
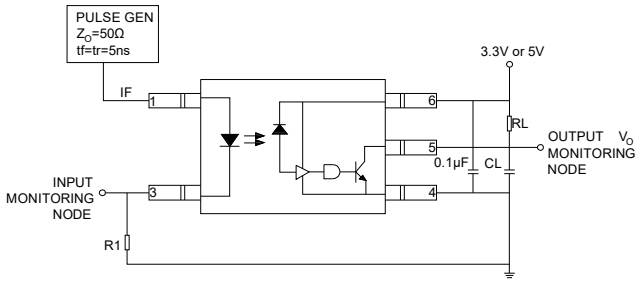
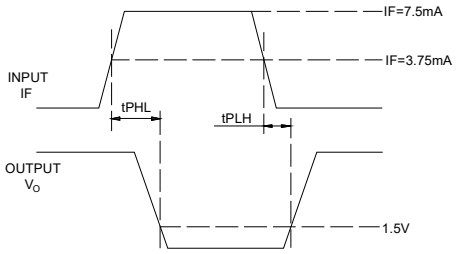
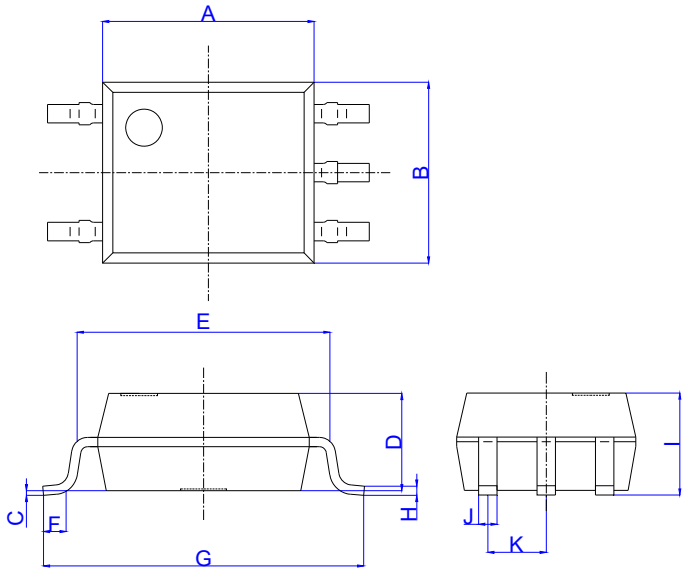


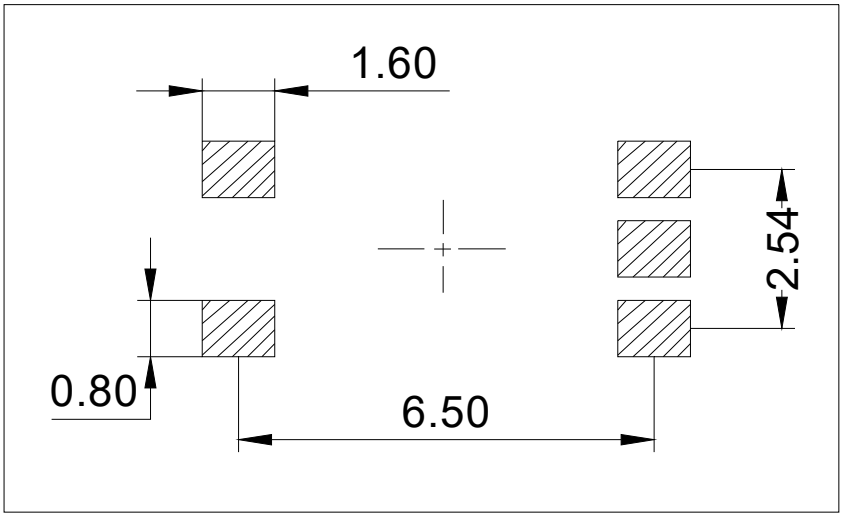
Fig.15: Test Circuit and Waveform of t_{PHL}, t_{PLH}



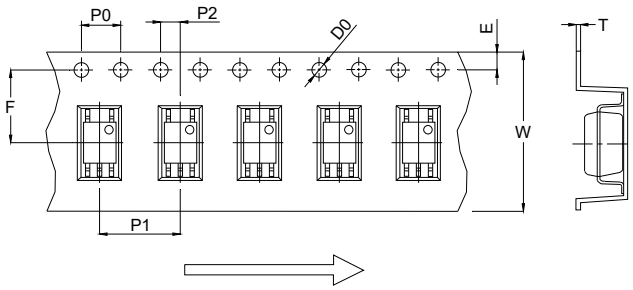




Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.80	0.173		0.189
B	3.60		4.20	0.142		0.165
C	0.00		0.20	0.000		0.008
D	1.90		2.30	0.075		0.091
E	5.00		5.60	0.197		0.220
F	0.34		0.94	0.013		0.037
G	6.70		7.30	0.264		0.287
H	0.10		0.30	0.004		0.012
I	2.00		2.40	0.079		0.094
J	0.25		0.55	0.010		0.022
K	1.02		1.52	0.040		0.060

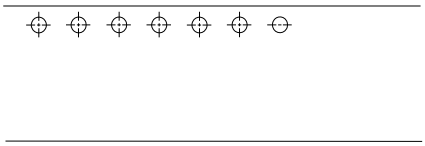


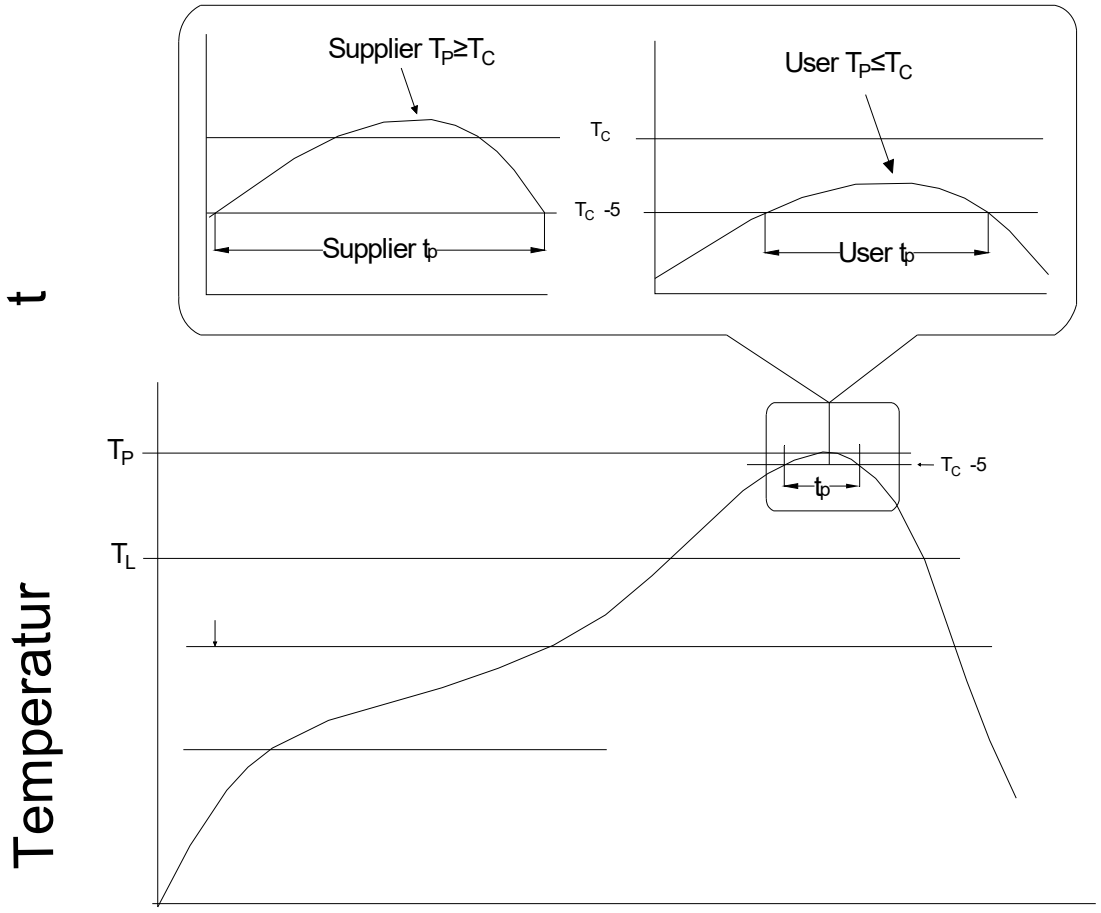
Option None



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
D0		1.50	1.60		0.059	0.063
P0	3.90	4.00	4.10	0.154	0.157	0.161
P1	7.90	8.00	8.10	0.311	0.315	0.319
P2	1.90	2.00	2.10	0.075	0.079	0.083
E	1.65	1.75	1.85	0.065	0.069	0.073
F	7.40	7.50	7.60	0.291	0.295	0.299
T	0.27	0.30	0.33	0.011	0.012	0.013
W	15.80	16.00	16.20	0.622	0.630	0.638

Option R




Supplier $T_P \geq T_C$
User $T_P \leq T_C$
T_C
T_C -5
Supplier t_p
User t_p
t
Temperatur
T_P
T_L
T_C -5
t_p

Note:

1. Reflow soldering is recommended at the temperatures and times shown, no more than three times.

2. Avoid direct contact between the epoxy body and any tools or surfaces exceeding its maximum storage temperature.

3. Application of pressure on the epoxy body is prohibited at elevated temperatures. In specific scenarios, any applied force must not exceed 2.5N.

4. Ensure the component has cooled to ambient temperature before proceeding with any subsequent manufacturing steps.

5. The component has a shelf life of one year when stored under standard conditions.

6. Recommend storage Temp.: 0~40°C;

Recommend storage humidity: <60%;

MSL level: MSL 1