



DESCRIPTION:

The products are gate driver opto-couplers in LSOP5 and LSOP5W packages. The device consists of an infrared LED optically coupled to an integrated high-gain, high-speed photodetector IC chip. It provides guaranteed performance and specifications at temperature up to 110 °C. It is physically smaller and compliant with international safety standards for reinforced insulation. It thus provides a smaller footprint solution for applications that require safety standard certification. An internal noise shield provides a guaranteed common-mode transient immunity of $\pm 35 \text{ kV}/\mu\text{s}$. It is ideal for small class IGBT and power MOSFET gate drive. The products are widely used in industrial inverters, IGBT gate drivers, MOSFET gate drivers, induction cooktop and home appliances.

MAIN FEATURES

3A maximum peak output current

High isolation 5000 VRMS

Buffer logic type

Operating temperature range -40°C to 110°C

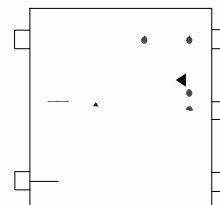
REACH & RoHS compliance

HBM: H3A; MM: M4; CDM: C3

CQC approved

VDE approved

UL approved



Truth Table

LED	V _{CC} -V _{EE} (Positive Going)	V _{CC} -V _{EE} (Negative Going)	Output
OFF	0-30V	0-30V	Low
ON	0-6.9V	0-5.9V	Low
ON	6.9V-8.7V	5.9V-7.5V	TRANSITION
ON	8.7V-30V	7.5V-30V	HIGHT



ABSOLUTE MAXIMUM RATINGS (Temperature=25°C)

LED	Forward Current	I_F	50	mA
	Peak Forward Current	I_{FP}	1	A
	Reverse Voltage	V_R	6	V
	Power Dissipation	P_D	100	mW
Detector	Output Voltage	V_O	35	V
	Supply Voltage	V_{CC}	35	V
	Power Dissipation	P_C	400	mW
Isolation Voltage		V_{iso}	5000	Vrms
Operating Temperature		T_{opr}	-40~110	
Junction Temperature		T_j	125	
Storage Temperature		T_{stg}	-55~125	
Total Power Dissipation		P_{tot}	500	mW
Soldering Temperature		T_{sol}	260	

NOTE1: μ

NOTE2:

ELECTRICAL CHARACTERISTICS (Temperature=25°C)

Input	Forward Voltage	V_F	$I_F=10mA$	-	1.35	1.6	V
	Reverse Current	I_R	$V_R=6V$	-	-	1	μA
	Terminal Capacitance	C_t	$V=0, f=1MHz$	-	60	-	pF
Output	Peak High-level Output Current	I_{OPH}	$V_O=V_{CC}-4V$, Pulse width $\leq 50\mu s$	-1	-	-	A
			$V_O=V_{CC}-15V$, Pulse width $\leq 10\mu s$	-3	-	-	A
	Peak Low-level Output Current	I_{OPL}	$V_O=V_{EE}+2.5V$, Pulse width $\leq 50\mu s$	1	-	-	A
			$V_O=V_{EE}+15V$, Pulse width $\leq 10\mu s$	3	-	-	A
	High Level Supply Current	I_{CCH}	$I_F=10mA$ $V_{CC}=30V$, $V_O=Open$	-	1.2	2	mA
	Low Level Supply Current	I_{CCL}	$I_F=0mA$, $V_{CC}=30V$, $V_O=Open$	-	1.1	2	mA



	High Level Output Voltage	V_{OH}	$I_F=5mA$, $V_{CC}=10V$, $I_O=-100mA$	6	8.4	-	V
	Low Level Output Voltage	V_{OL}	$V_F=0.8V$, $V_{CC}=10V$, $I_O=100mA$	-	0.3	1	V
	Threshold Input Current	I_{FLH}	$V_{CC}=15V$, $V_O=1V$	-	1.2	5	mA
	Threshold Input Voltage	V_{FHL}	$V_{CC}=15V$, $V_O=1V$	0.8	-	-	V
	Supply Voltage	V_{CC}	-	10	-	30	V
	UVLO Threshold	VUVLO+	$V_O=2.5V$, $I_F=5mA$	7.5	8.7	9.5	V
		VUVLO-	$V_O=2.5V$, $I_F=5mA$	7.5	8.4	9.5	V



SWITCHING SPECIFICATION

Propagation Delay Time to High Output Level	t_{PLH}	$R_g=47\Omega$, $C_g=3nF$, $I_F=0 \rightarrow 5mA$, $V_{CC}=30V$	30	-	500	ns
Propagation Delay Time to Low Output Level	t_{PHL}	$R_g=47\Omega$, $C_g=3nF$, $I_F=5 \rightarrow 0mA$, $V_{CC}=30V$	30	-	500	
Propagation Delay Difference Between Any Two Parts	$t_{PHL} - t_{PLH}$	$R_g=47\Omega$, $C_g=3nF$, $I_F=0 \leftarrow \rightarrow 5mA$, $V_{CC}=30V$	-	-	350	
Output Rise Time (10 to 90%)	t_r	$R_g=47\Omega$, $C_g=3nF$, $I_F=0 \rightarrow 5mA$, $V_{CC}=30V$	-	50	-	
Output Fall Time (90 to 10%)	t_f	$R_g=47\Omega$, $C_g=3nF$, $I_F=5 \rightarrow 0mA$, $V_{CC}=30V$	-	50	-	
Common Mode Transient Immunity at High Level Output	$ CM_H $	$I_F=5mA$ $V_{CC}=30V$, $T_a=25^\circ$, $V_O(min)=26V$ $V_{CM}=1000V_{pp}$	± 35	-	-	kV/ μs
Common Mode Transient Immunity at Low Level Output	$ CM_L $	$I_F=0mA$ $V_{CC}=30V$, $T_a=25^\circ$, $V_O(max)=1V$ $V_{CM}=1000V_{pp}$	± 35	-	-	kV/ μs

Note1

Note2

Note3

	10	mA
	0.8	V
	30	V

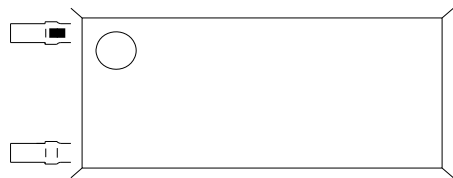


ORDERING INFORMATION

J	OC	D	A	3	B	B	-L5X	/
JieJie Microelectronics Co., Ltd.	Opto Coupler	Driver	High-side PMOS	3: I _{T(RMS)} : 2.5A	UVLO: 7-9V	B: I _{FT} ≤ 5mA	None: LSOP5 W: LSOP5W	None: T1 R: T2

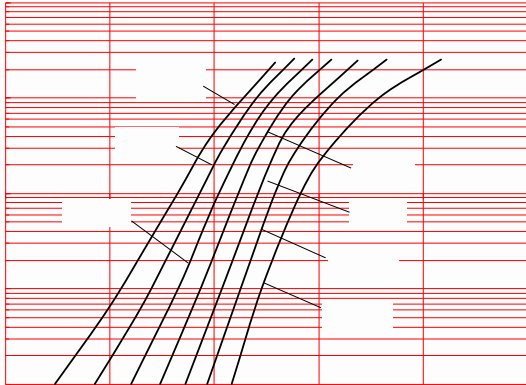
Packing Quantity	
Option	Quantity

MARKING

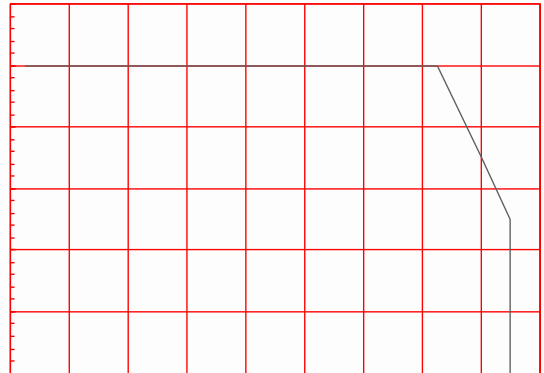


Characteristics Curves

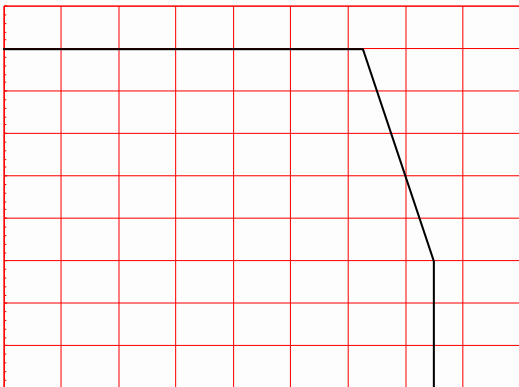
Forward Current vs. Forward Voltage



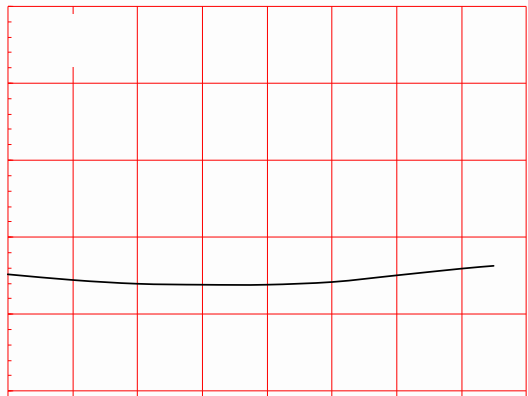
Max. Allowable LED Forward Current vs. Ambient Temperature



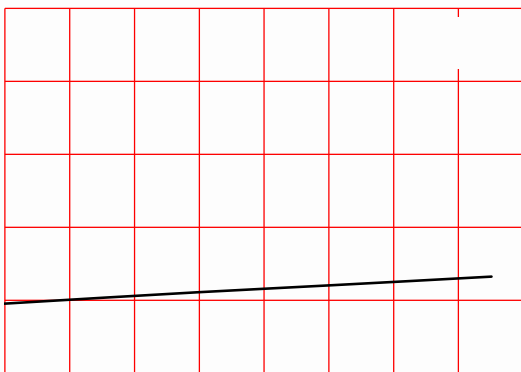
Collector Power Dissipation vs. Ambient Temperature



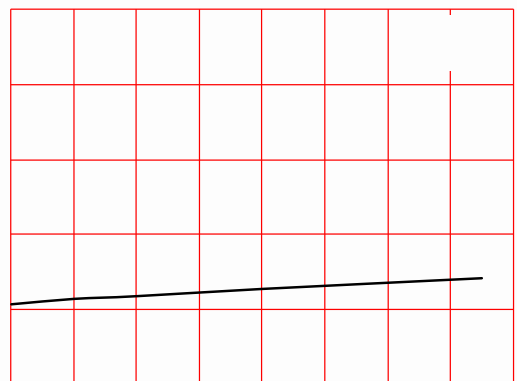
Threshold Input Current vs. Ambient Temperature



Low-level Supply Current vs. Ambient Temperature

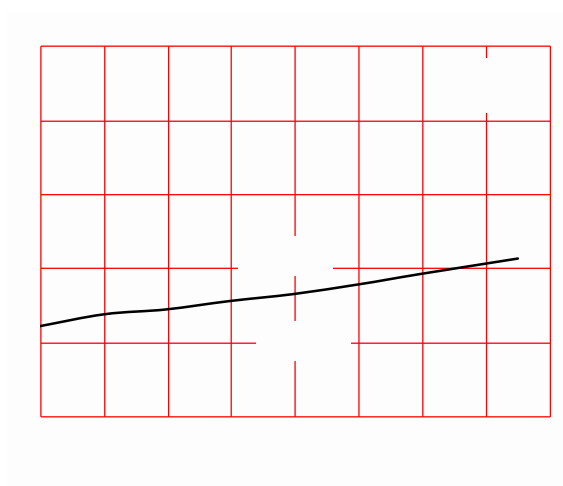


High-level Supply Current vs. Ambient Temperature

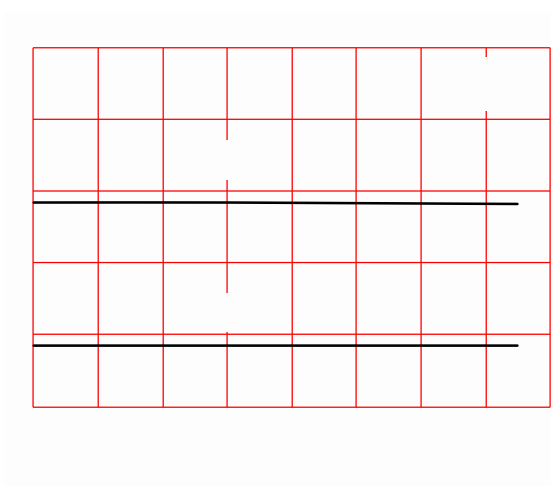




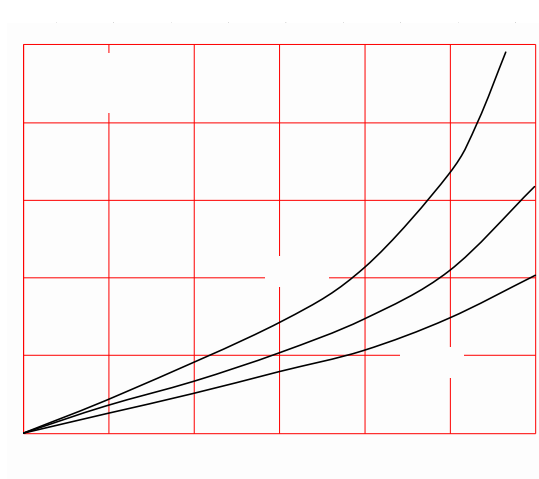
Low-level Output Voltage vs. Ambient Temperature



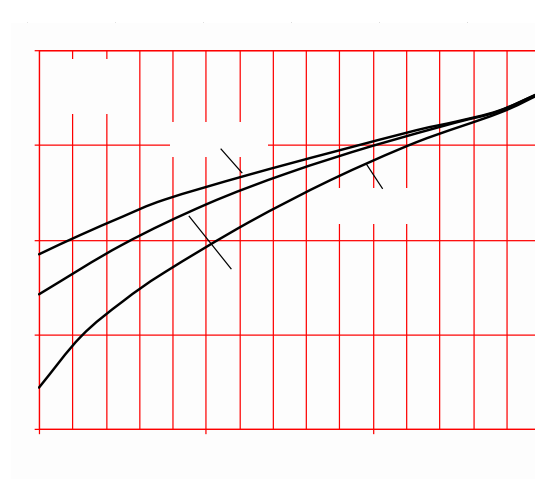
High-level Output Voltage vs. Ambient Temperature



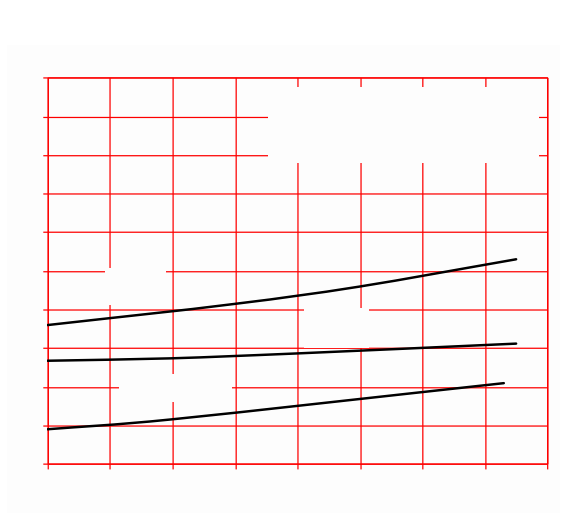
Low-level Output Voltage vs. Peak Low-level Output Current



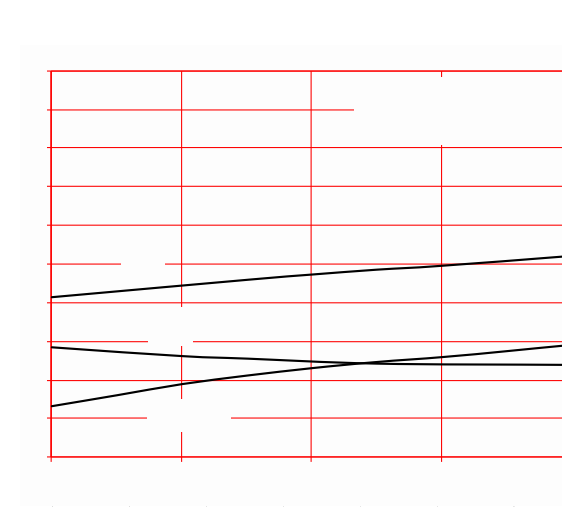
High-level Output Voltage Drop vs. Peak High-level Output Current



Propagation Delay Time, Pulse Width Distortion vs. Ambient Temperature

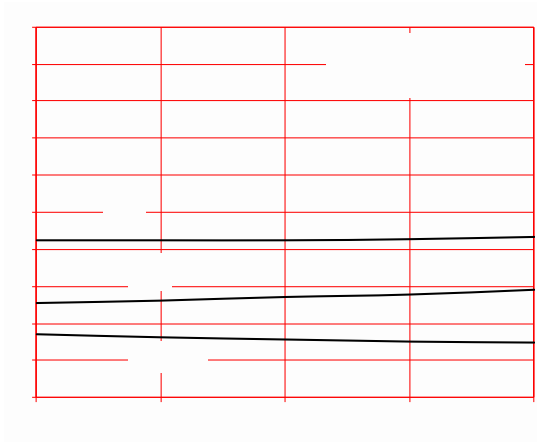


Propagation Delay Time, Pulse Width Distortion vs. Forward Current



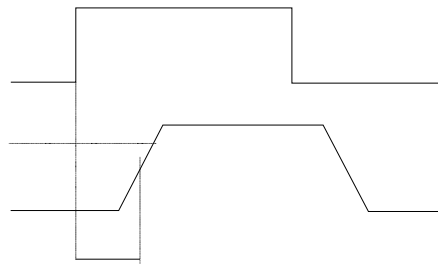
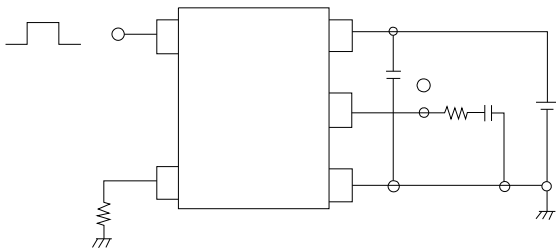


Propagation Delay Time,Pulse Width Distortion vs. Supply Voltage



Test Circuits

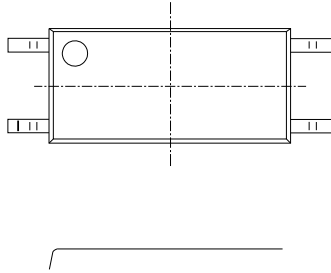
Switching Time Test Circuit and Waveform





Package Dimension (Unit: mm)

LSOP5

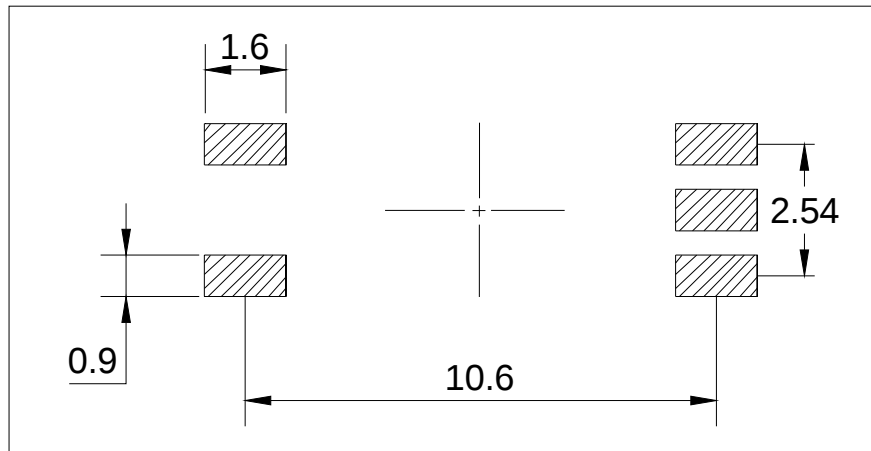


Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	7.40		7.80	0.291		0.307
B	3.40		3.80	0.134		0.150
C	0.00		0.20	0.000		0.008
D	1.80		2.20	0.071		0.087
E	8.10		8.70	0.319		0.343
F	0.40		1.00	0.016		0.039
G	9.90		10.50	0.390		0.413
H	0.10		0.30	0.004		0.012
I	1.80		2.40	0.071		0.094
J	0.25		0.55	0.010		0.022
K						

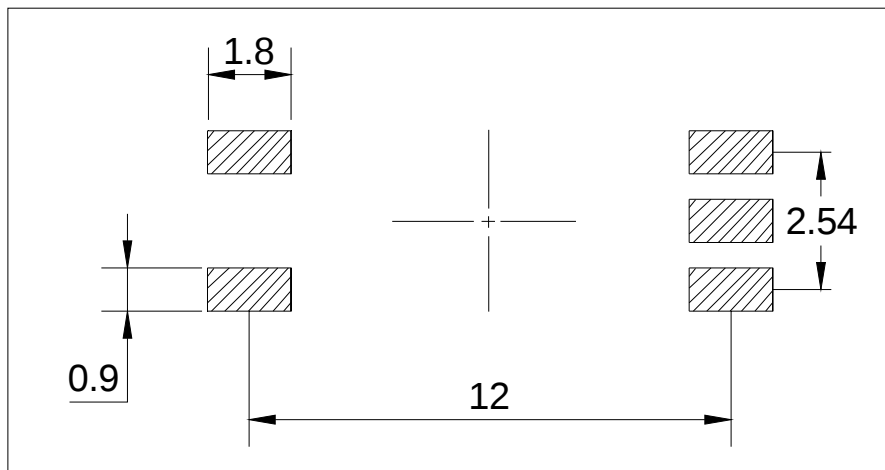


RECOMMENDED SOLDER MASK (Dimensions in mm unless otherwise stated)

LSOP5



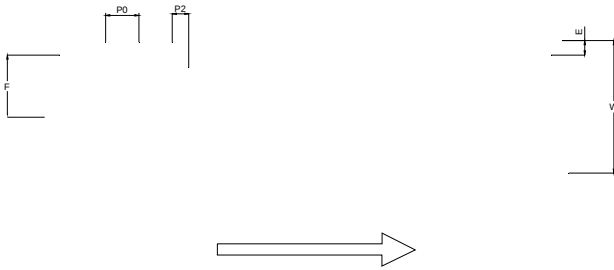
LSOP5W





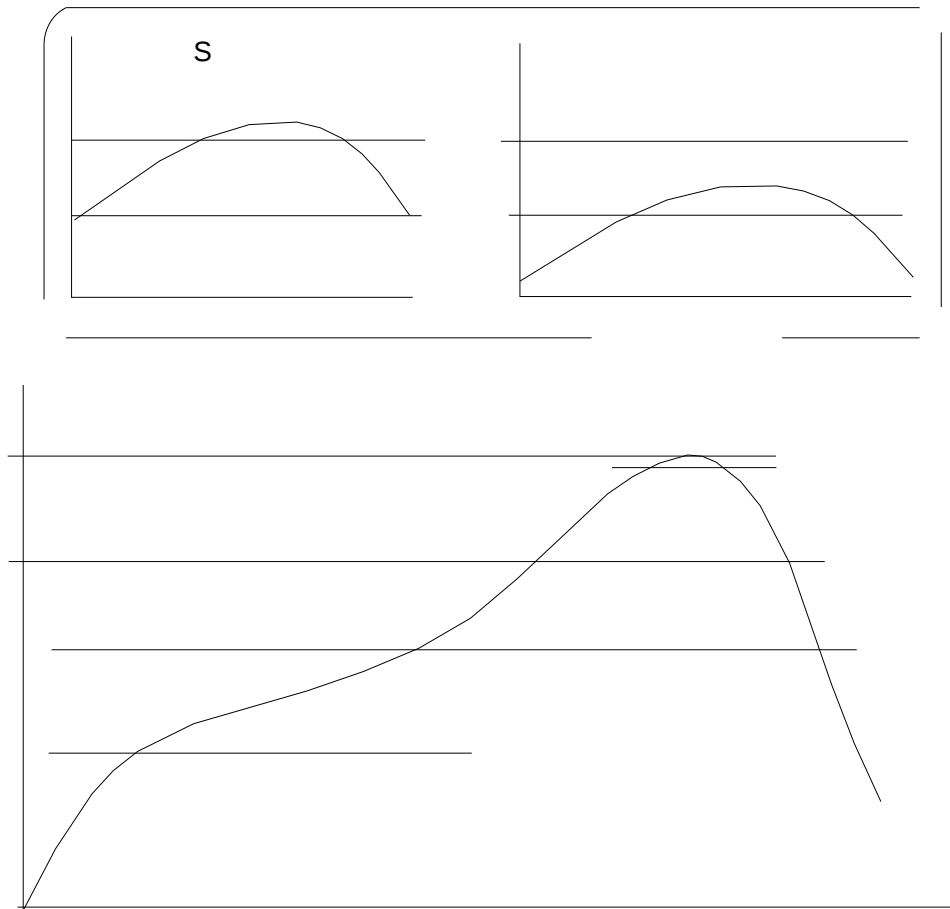
CARRIER TAPE SPECIFICATIONS (Dimensions in mm unless otherwise stated)

Option None/R





REFLOW INFORMATION





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

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