

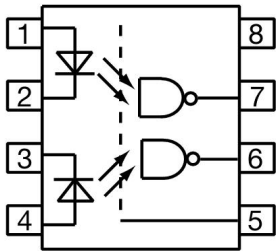


HT series

**Photo Coupler
Product Specification**

HT-2630

■ Package



A 0.1uF bypass capacitor must be connected between pin 8 and 5

Pin Name	Pin No.	Pin Function
INPUT	1,4	Anode
INPUT	2,3	Cathode
OUTPUT	5	GND
OUTPUT	6	VOUT
OUTPUT	7	VOUT
OUTPUT	8	VCC

■ Description

HT-2630 is dual channel 10 MBd optocoupler, and consists of infrared emitting diodes optically coupled to integrated high gain photo detectors. It is packaged in a 8-pin DIP package and available in wide-lead spacing and SMD options.

■ Features

- High speed 10Mbit/s
- Guaranteed performance from -40 to 85℃
- Logic gate output
- High isolation voltage between input and output (Viso=5000 V rms)
- Pb free and RoHS compliant.
- UL approved
- VDE approved
- CQC approved



■ Applications

- Ground loop elimination
- LSTTL to TTL, LSTTL or 5 volt CMOS
- Line receiver, data transmission
- Data multiplexing
- Switching power supplies
- Pulse transformer replacement
- Computer peripheral interface
- High speed logic ground isolation

■ Truth Table (Positive Logic)

Input	Output
H	L
L	H

■ Product Nomenclature

The product name is designated as below:

HT -2630A -BCD- EFG- IJ

Designation:

HT =Hengtuo Technology Co.,LTD.

2630= Product Series

A = Lead form option₍₁₎

B = CTR Rank₍₂₎

CD = Tape and Reel option₍₃₎

E = Lead frame Material₍₄₎

F = VDE order option(fixed code "V")

G = Halogen free option(fixed code"G")

IJ = Customer code

Notes

1. Lead form option:

Symbol	Description
S1	DIP-S1
M	DIP-M
NONE	DIP/SOP Normal

2. CTR Rank:

Symbol	Description
A,B,C,D,E...	CTR Rank



NONE	No Rank
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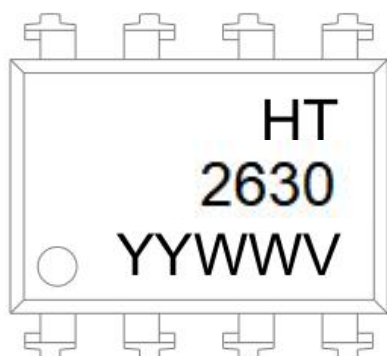
3. Tape and Reel option:

Symbol	Description
TP&TP1	Tape and Reel Type
NONE	DIP&SOP Type

4. Lead frame Material

Symbol	Description
F	Iron
NONE	Copper

■ Marking Information



Designation:

HT	denotes Hengtuo
2630	denotes Device
YY	denotes year code
WW	denotes week code
V	denotes VDE

■ Maximum Ratings(Ta=25℃)

Parameter		Symbol	Values	Unit
Input	Forward Current	I _F	50	mA
	Reverse voltage	V _R	5	V
	Power dissipation	P _D	100	mW
Output	Power dissipation	P _C	85	mW
	Output current	V _{ECO}	50	mA
	Output voltage	V _O	7.0	V
	Supply voltage	V _{CC}	7.0	V
Output Power Dissipation		P _O	100	mW
Isolation voltage ⁽¹⁾		V _{ISO}	5000	V rms
Operating temperature		T _{OPR}	-40 ~ +105	℃
Storage temperature		T _{STG}	-55 ~ +125	℃
Soldering temperature ⁽²⁾		T _{SOL}	260	℃

Notes:



(1). AC for 1 minute, R.H.= 40 ~ 60% R.H. In this test, pins 1, 2, 3 & 4 are shorted together, and pins 5, 6, 7 & 8 are shorted together.

(2).For 10 seconds

■ Electronic Optical Characteristics

(TA = -40 to 85°C unless specified otherwise)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Conditon
Input	Forward Voltage	V_F	-	1.4	1.8	V	$I_F=10\text{mA}$
	Reverse voltage	V_R	5.0	-	-	V	$I_R=10\mu\text{A}$
	Temperature coefficient of forward voltage	$\Delta V_F/\Delta T_A$	-	-1.8	-	mV/°C	$I_F=10\text{mA}$
	Input capacitance	C_{IN}	-	60	-	pF	$V_F=0$, $f=1\text{MHz}$
Output	High level supply current	I_{CCH}	-	12.8	18	mA	$I_F=0\text{mA}$, $V_{CC}=5.5\text{V}$
	Low level supply current	I_{CCL}	-	14.6	21	mA	$I_F=10\text{mA}$, $V_{CC}=5.5\text{V}$

■ Transfer Characteristics

(Ta=-40 to 85°C unless specified otherwise)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditon
HIGH Level Output Current	I_{OH}	-	2.1	100	uA	$V_{CC}=5.5\text{V}$, $V_O=5.5\text{V}$, $I_F=250\mu\text{A}$,
LOW Level Output Current	V_{OL}	-	0.35	0.6	V	$V_{CC}=5.5\text{V}$, $I_F=5\text{mA}$, $I_{CL}=13\text{mA}$
Input Threshold Current	I_{FT}	-	2.5	5	mA	$V_{CC}=5.5\text{V}$, $V_O=0.6\text{V}$, $V_E=2.0\text{V}$, $I_{OL}=13\text{mA}$

■ Switching Characteristics

(Ta=-40 to 85°C, VCC=5V, IF=7.5mA unless specified otherwise)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditon
Propagation delay time to output High level ⁽³⁾	T _{PHL}	-	35	75	ns	C _L = 15pF, R _L =350Ω, T _A =25°C
Propagation delay time to output Low level ⁽⁴⁾	T _{PLH}	-	40	75	ns	C _L = 15pF, R _L =350Ω, T _A =25°C
Pulse width distortion	T _{pHl} – T _{plh}	-	5	35	ns	C _L = 15pF, R _L =350Ω
Output rise time ⁽⁵⁾	tr	-	40	-	ns	C _L = 15pF, R _L =350Ω
Output fall time ⁽⁶⁾	tf	-	10	-	ns	C _L = 15pF, R _L =350Ω
Common Mode Transient Immunity at Logic High ⁽⁷⁾	CMH	5000	-	-	V/μS	IF = 0mA , V _{OH} =2.0V, R _L =350Ω , T _A =25°C V _{CM} =10Vp-p
Common Mode Transient Immunity at Logic Low ⁽⁸⁾	CML	5000	-	-	V/μS	IF = 7.5mA , V _{OL} =0.8V, R _L =350Ω , T _A =25°C V _{CM} =10Vp-p

■ Typical Electro-Optical Characteristics Curves

Fig.1 Typical Input Diode Forward Characteristic

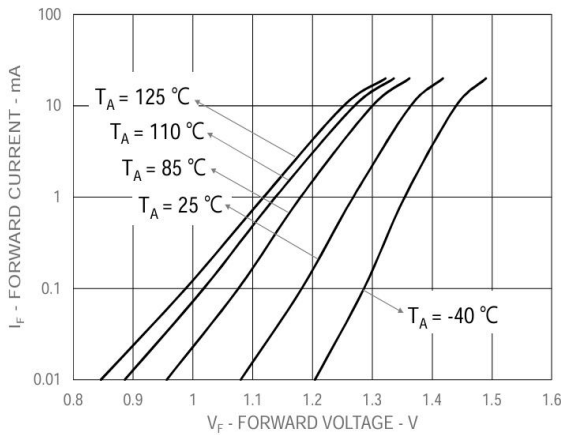


Fig.2 Typical High Level Output Current vs. Ambient Temperature

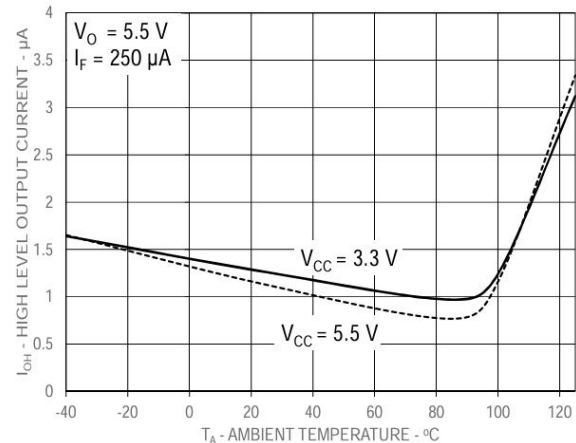


Fig.3 Typical Input Diode Threshold Current vs. Ambient Temperature

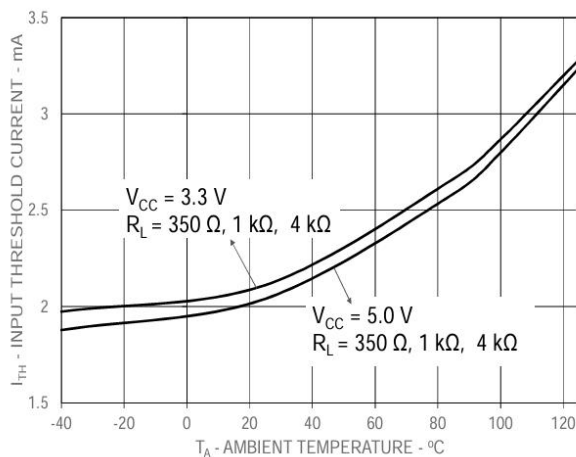


Fig.4 Typical Input Diode Forward Characteristic

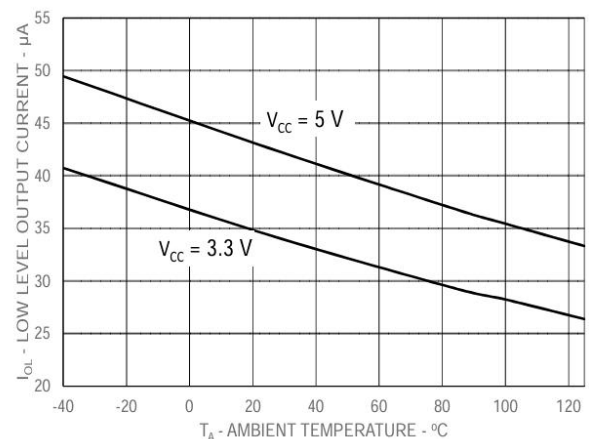


Fig.5 Typical Low Level Output Voltage vs. Ambient Temperature

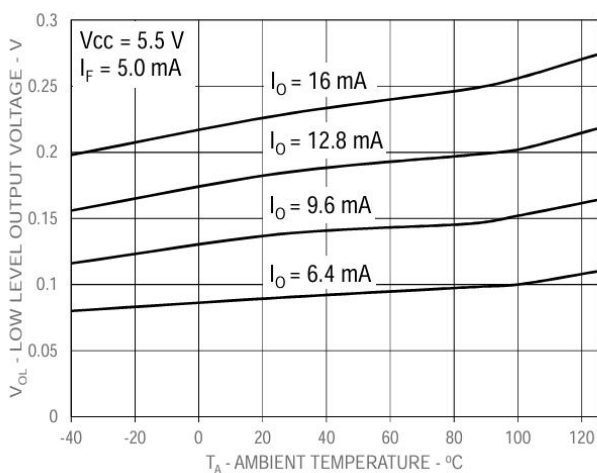


Fig.6 Typical Propagation Delay vs. Ambient Temperature

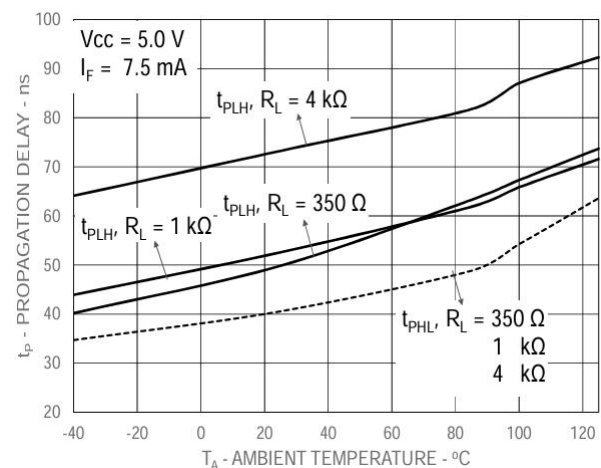


Fig.7 Typical Pulse Width Distortion vs. Ambient Temperature

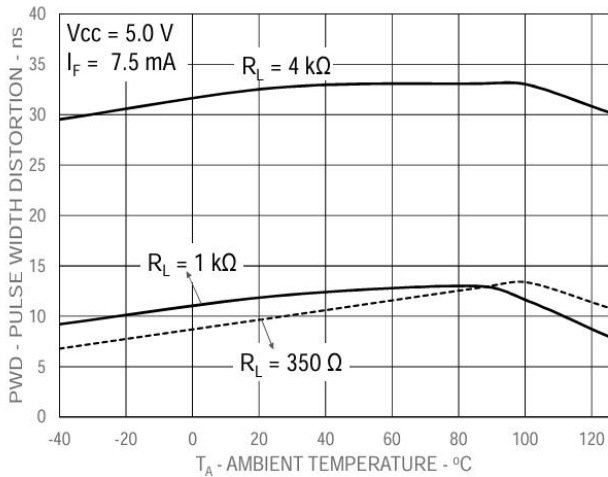


Fig.8 Test Circuit for tPHL and tPLH

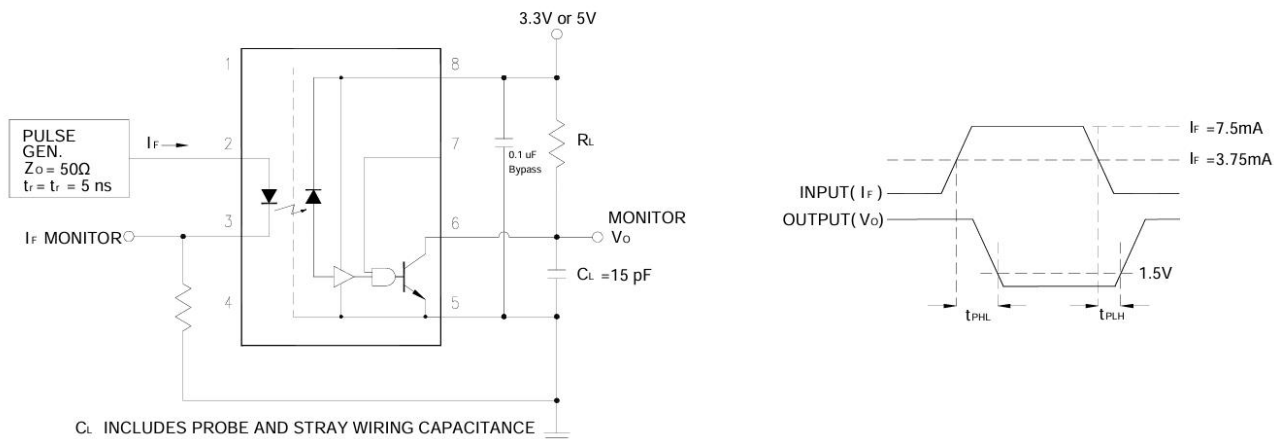


Fig.9 Single Channel Test Circuit for Common Mode Transient Immunity

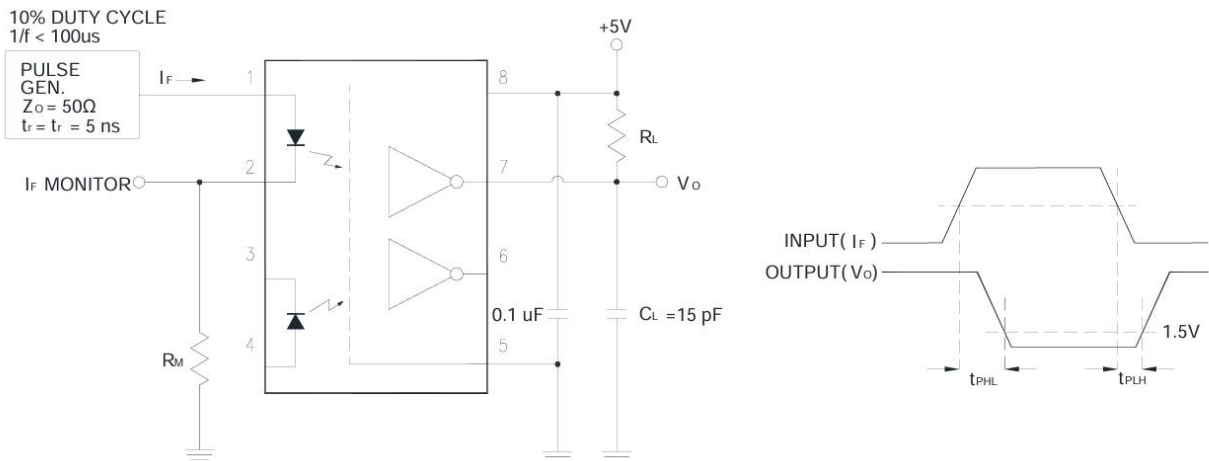
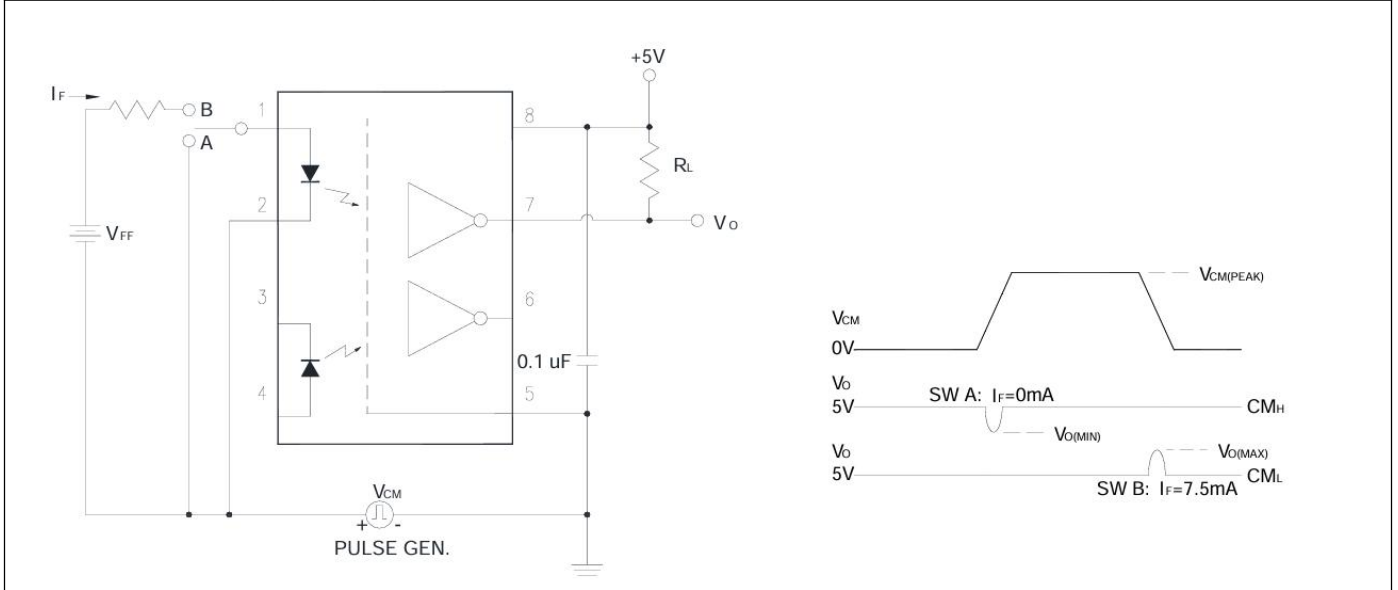


Fig.10 Single Channel Test Circuit for Common Mode Transient Immunity

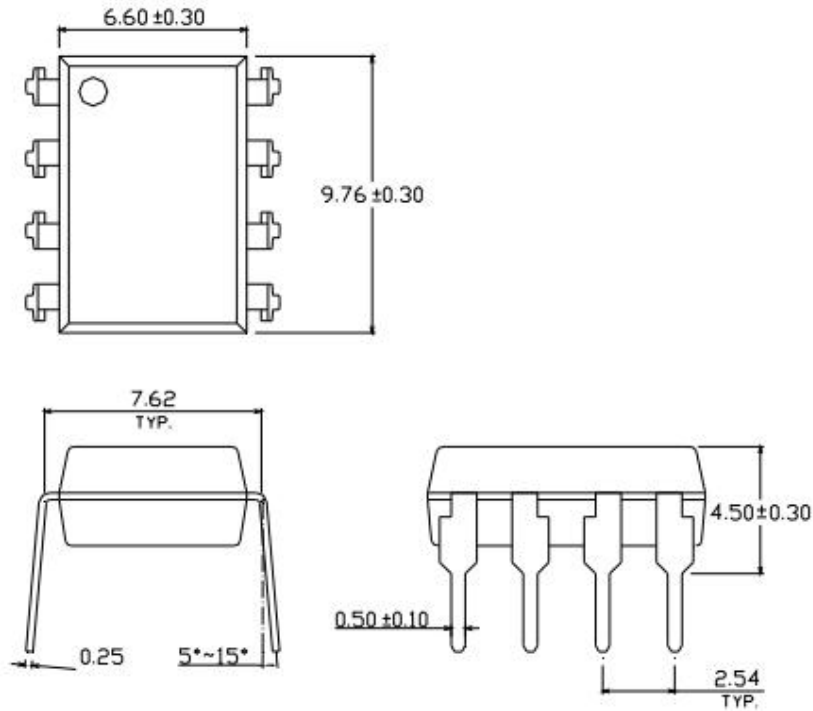


Note

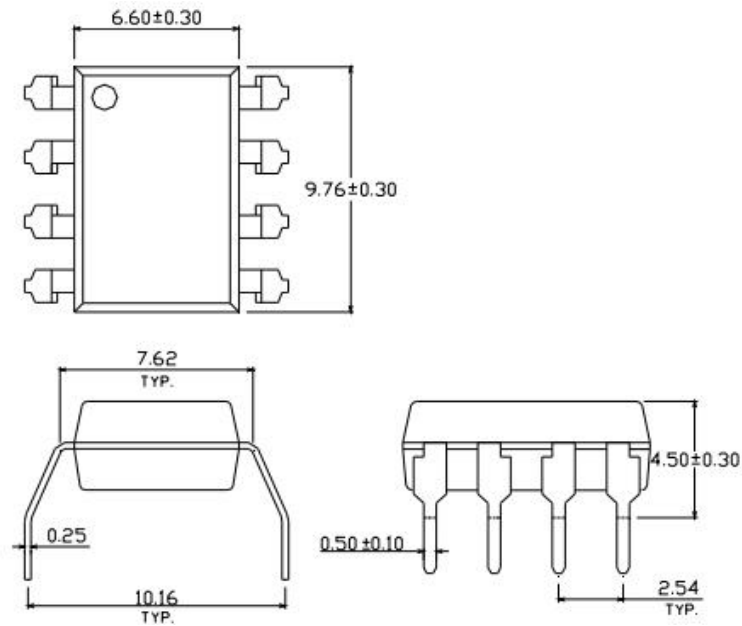
- (3) t_{PLH} – Propagation delay is measured from the 3.75mA level on the HIGH to LOW transition of the input current pulse to the 1.5 V level on the LOW to HIGH transition of the output voltage pulse.
- (4) t_{PHL} – Propagation delay is measured from the 3.75mA level on the LOW to HIGH transition of the input current pulse to the 1.5 V level on the HIGH to LOW transition of the output voltage pulse.
- (5) t_r – Rise time is measured from the 90% to the 10% levels on the LOW to HIGH transition of the output pulse.
- (6) t_f – Fall time is measured from the 10% to the 90% levels on the HIGH to LOW transition of the output pulse.
- (7) CM_H – The maximum tolerable rate of rise of the common mode voltage to ensure the output will remain in the HIGH state (i.e., $V_{OUT} > 2.0V$).
- (8) CM_L – The maximum tolerable rate of rise of the common mode voltage to ensure the output will remain in the LOW output state (i.e., $V_{OUT} < 0.8V$).

■ Outline Dimension

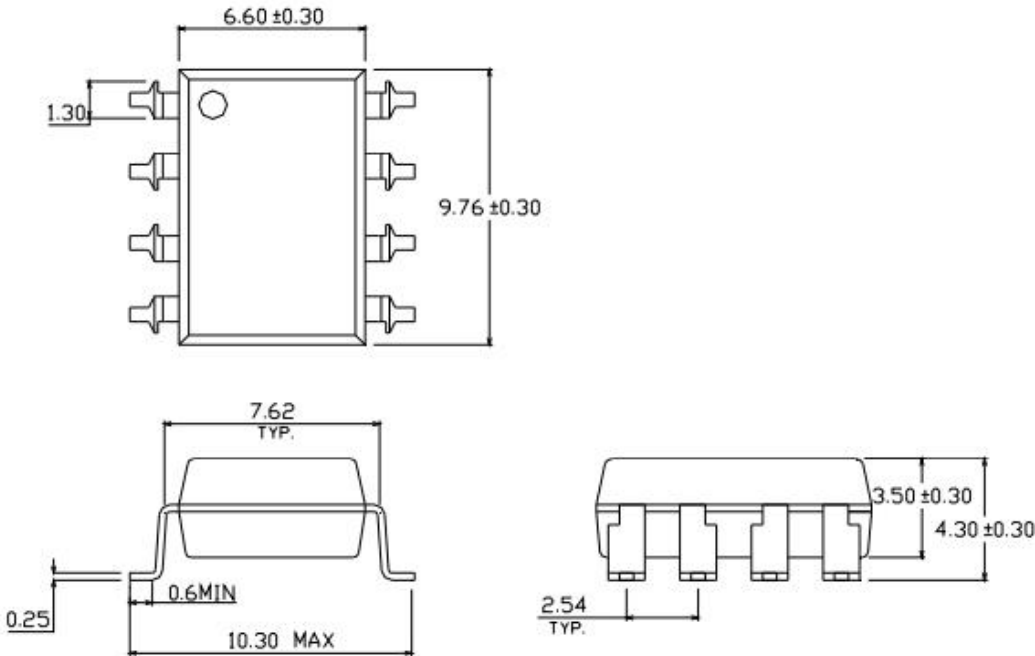
Standard DIP Type



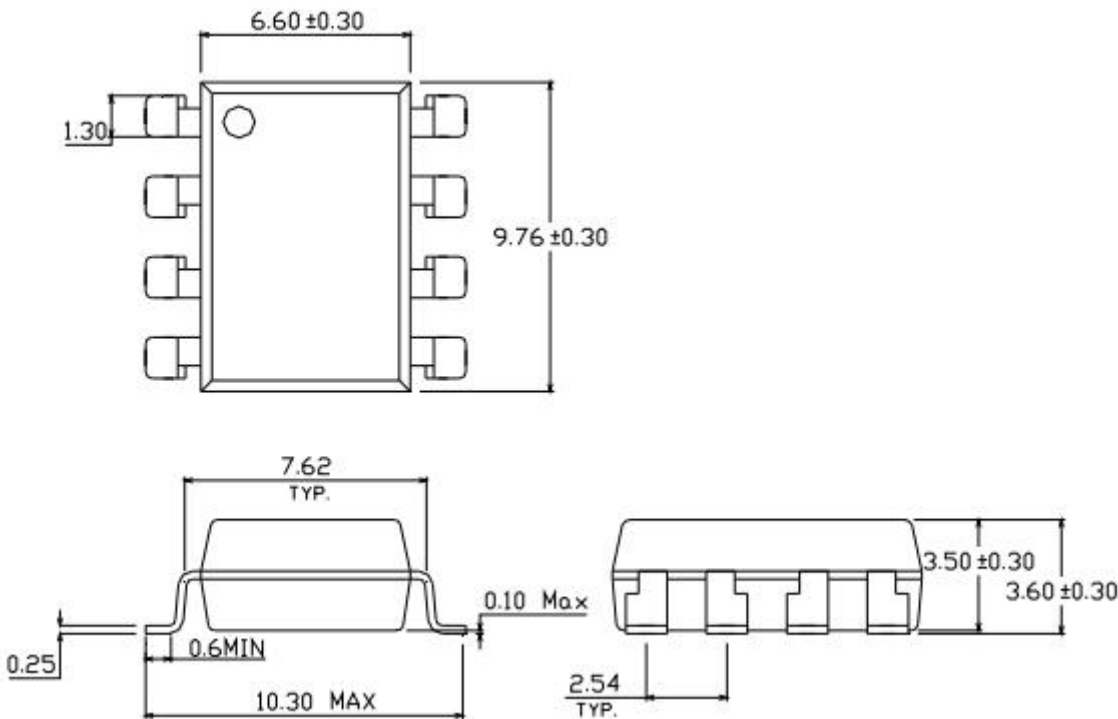
Option M Type



Option S Type

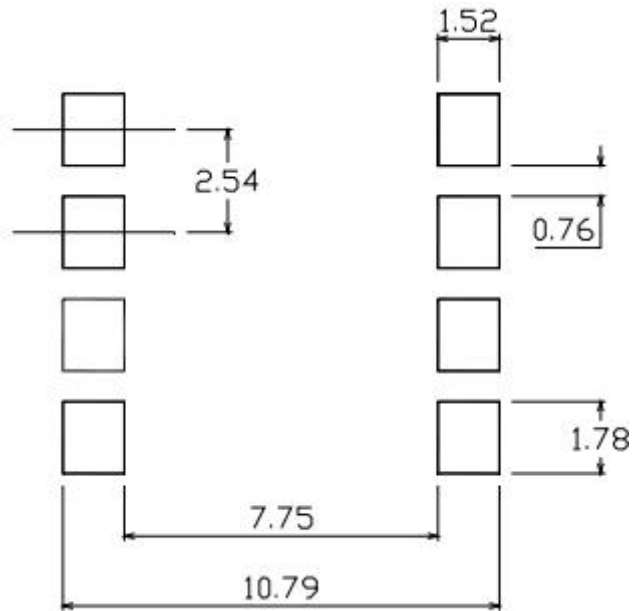


Option S1 Type



Unit: mm
Tolerance: ± 0.1 mm

■ Recommended solder pad Design



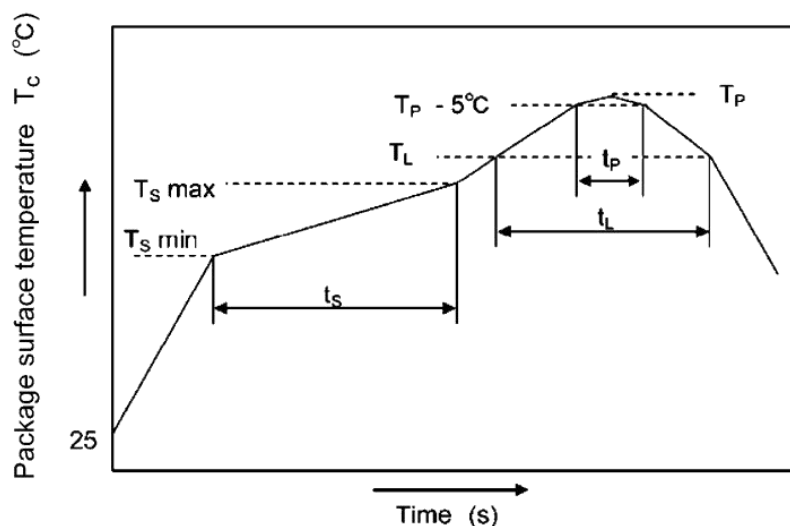
Unit: mm
Tolerance: $\pm 0.1\text{mm}$

■ Temperature Profile Of Soldering

1. IR Reflow soldering

(IPC/JEDEC J-STD-020D compliant)

Profile item	Conditon
Preheat	
Temperature min (T_{smin})	150 °C
Temperature max (T_{smax})	200°C
Time (T_{smin} to T_{smax}) (t_s)	60-120 seconds
Average ramp-up rate (T_{smax} to T_p)	3 °C/second max
Other	
Liquidus Temperature (T_L)	217 °C
Time above Liquidus Temperature (t_L)	60-100 sec
Peak Temperature (T_P)	260°C
Time within 5 °C of Actual Peak Temperature: $T_P - 5^{\circ}\text{C}$	30 s
Ramp- Down Rate from Peak Temperature	6°C /second max.
Time 25°C to peak temperature	8 minutes max.
Reflow times	3 times

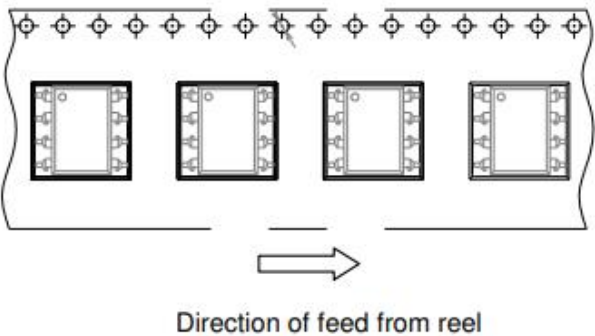


Notes:

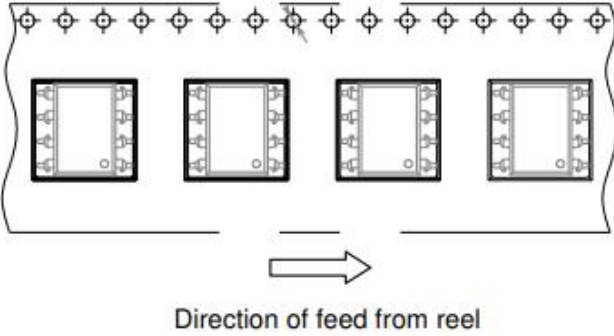
One time soldering reflow is recommended within the condition of temperature and time profile shown below. Do not solder more than three times.

■ Packing
Tape and Reel

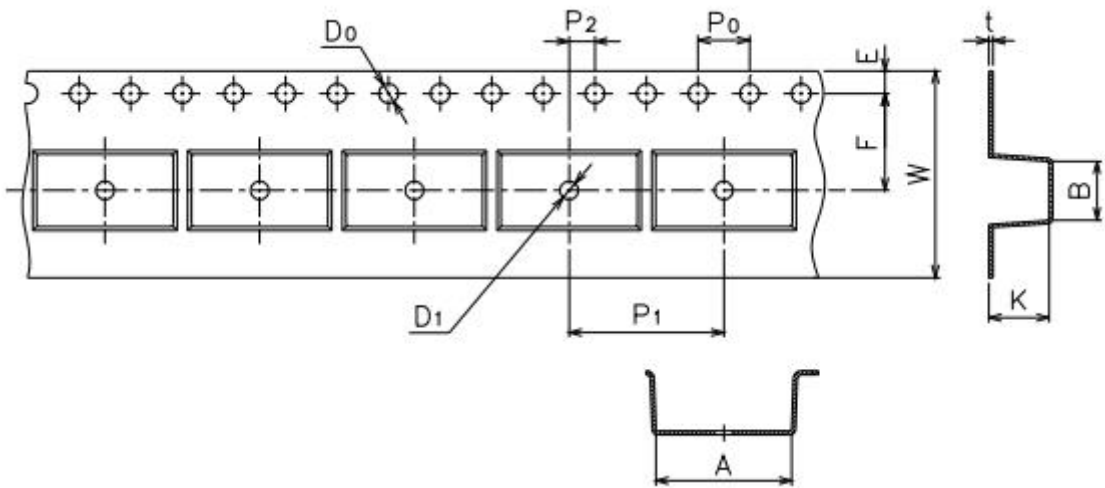
Option TA1:



Option TA:



Tape dimension



Deminsion/mm	A	B	Do	D1	E	F
Packagetype:S	10.4 ± 0.1	10.0 ± 0.1	$1.5+0.1/-0$	$1.5\pm0.25/-0$	1.75 ± 0.1	7.5 ± 0.1

Deminsion/mm	Po	P1	P2	t	W	K
Packagetype:S	4.0 ± 0.1	12.0 ± 0.1	2.0 ± 0.05	0.4 ± 0.05	$16.0\pm0.3/$	4.5 ± 0.1



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