

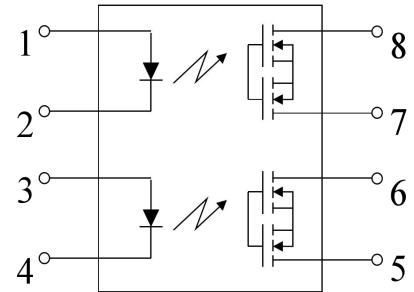


60V MOSFET Output Photo Relay

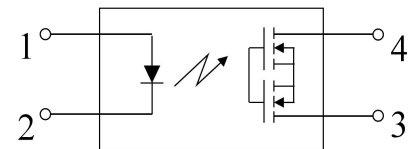
Block Diagram and Package

Description

The JOR412D4 and JOR412D8 Photo Relay consist of a photo MOSFET, Photovoltage generator, infrared LED.



1, 3: Anode (LED)
2, 4: Cathode (LED)
5, 6, 7, 8: Drain (MOS FET)



1: Anode (LED)
2: Cathode (LED)
3, 4: Drain (MOS FET)

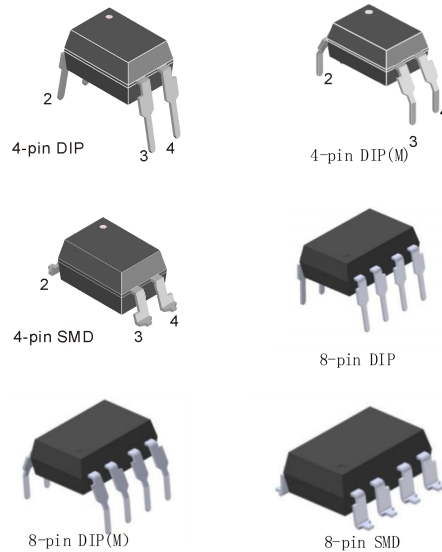
Features

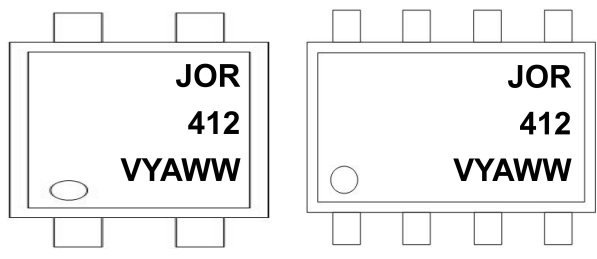

- Normally opened (SPST)
● Control 60V AC or DC voltage
● Switch 2A load
● Controls low-level analog signals
● High sensitivity, low conductivity resistance
● Low-level off state leakage current
● High isolation voltage 5KV (DIP / SMD)
● Lead free, meet RoHS standards

Applications

- Communications products (personal computers, laptops)
● Modem/sensor
● Mobile phones/security equipment
● Measuring and testing equipment
● Plant automation equipment
● High-speed inspection machines

PACKAGE OUTLINE



ORDERING AND MARKING INFORMATION	
MARKING INFORMATION	
	<p>JOR : Company Abbr. 412 : Part Number Y : Fiscal Year A : Manufacturing Code WW : Work Week</p>
ORDERING INFORMATION	LABEL INFORMATION
JOR412DX(Y)(Z)-G	
<p>JOR – Company Abbr 412 – Part Number D – DIP or SMD Package X – 4 or 8(Pin Count) Y – Lead Form Option (M/S/SL/None) Z – Tape and Reel Option (T1/T2) G – Green</p>	

Absolute Maximum Ratings (T_A=25°C)

Parameter		Symbol	Rating	Unit	Note
Input	LED Forward Current	I _F	50	mA	
	LED Reverse Voltage	V _R	3	V	
	Peak Forward Current	I _{FP}	1	A	f =100 Hz, Duty factor= 0.1%
	Power Dissipation	P	75	mW	
Output	Load Voltage(peak AC)	V _L	60	V	
	Continuous load current (peak AC)	I _L	2	A	
	Peak load current	I _{peak}	6	A	100 ms (1 shot), V _L = DC
	Power Dissipation	P _{out}	500	mW	
I/O isolation voltage		V _{iso}	5,000	V _{rms}	
Temperature limits	Operating Temperature	T _{opr}	-40 ~ + 85	°C	Non-condensing at low temp
	Storage Temperature	T _{stg}	-40 ~ + 100		

Electro-optical Characteristics (Ta=25°C)

Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit
Input	LED Forward current	I_{Fon}	$I_L=2A$	0.5	1.9	3	mA
	LED turn off current	I_{Foff}	$I_L=2A$	-	1.6	3	mA
	LED dropout voltage	V_F	$I_F=5mA$	1	1.3	1.4	V
Output	On resistance	R_{on}	$I_F=5mA, I_L=2A,$ Within 1 s on time	-	0.58	1.5	Ω
	Off state leakage current	I_{Leak}	$I_F=0mA, V_L=600V$	-	-	1000	nA
Transfer Characteristics	Turn on time	T_{on}	$I_F=5mA, I_L=2A$	0.2	4.8	5	us
	Turn off time	T_{off}	$I_F=5mA, I_L=2A$	0.05	0.15	1	us
	I/O capacitance	C_{iso}	$f=1MHz, V_B=0$	-	0.8	1.5	pF
	Initial I/O isolation resistance	R_{iso}	500V DC	1,000	-	-	M Ω

Note: LED forward current recommendation value: $I_F=5mA$ to $10mA$

Typical Performance Curves

Fig.1 Load current vs. Ambient temperature characteristics

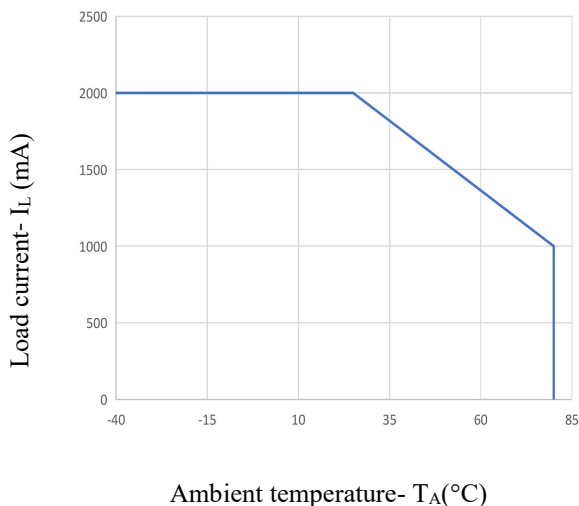


Fig.2 On resistance vs. Ambient temperature characteristics

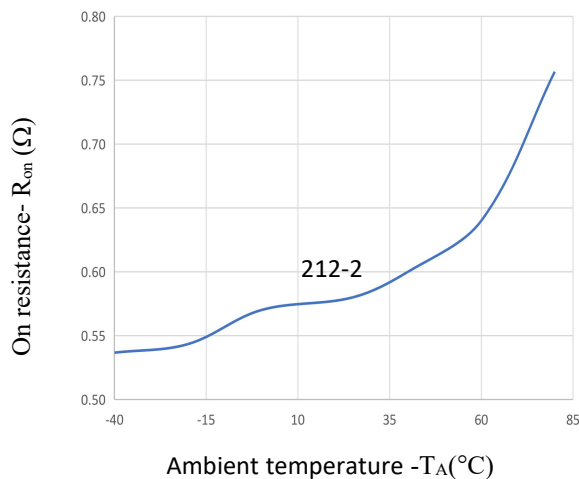


Fig.3 Turn on time vs. Ambient temperature characteristics

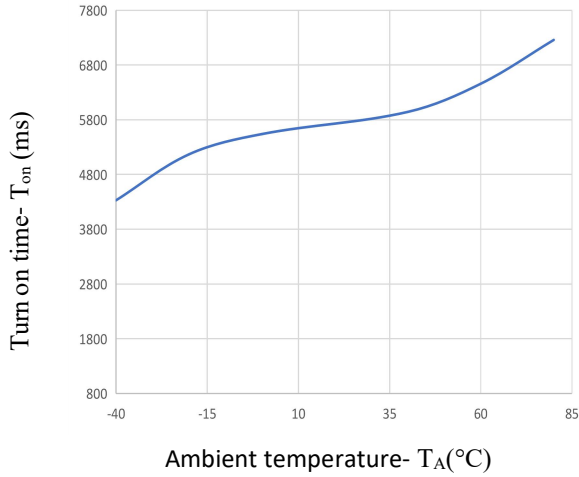


Fig.4 Turn off time vs. Ambient temperature characteristics

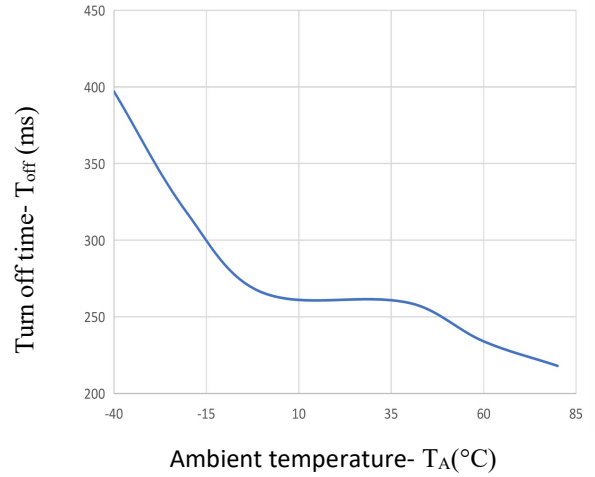


Fig.5 LED operate current vs. Ambient temperature characteristics

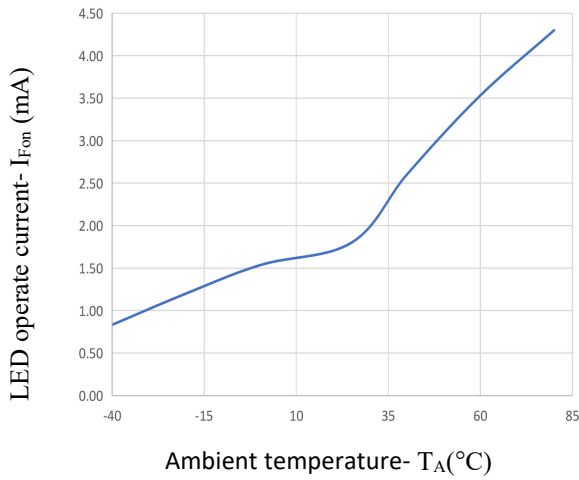


Fig.6 LED turn off current vs. Ambient temperature characteristics

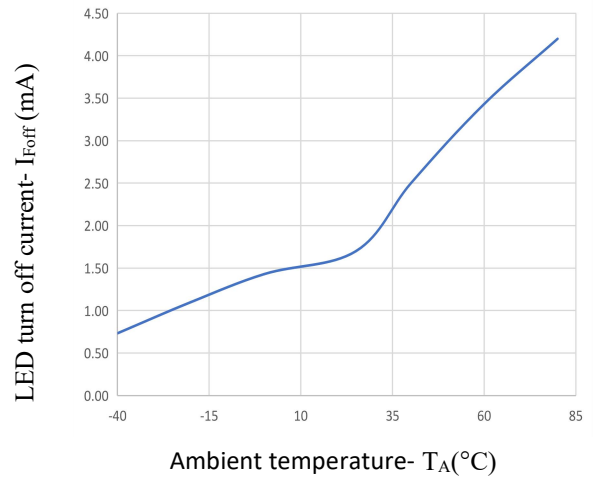


Fig.7 LED dropout voltage vs. Ambient temperature characteristics

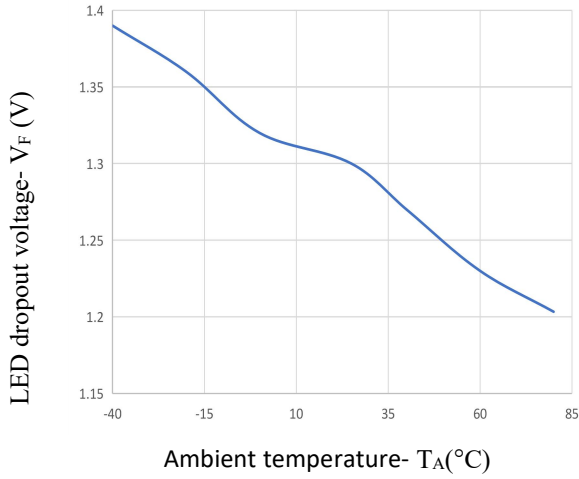


Fig.8 Output current vs Output voltage

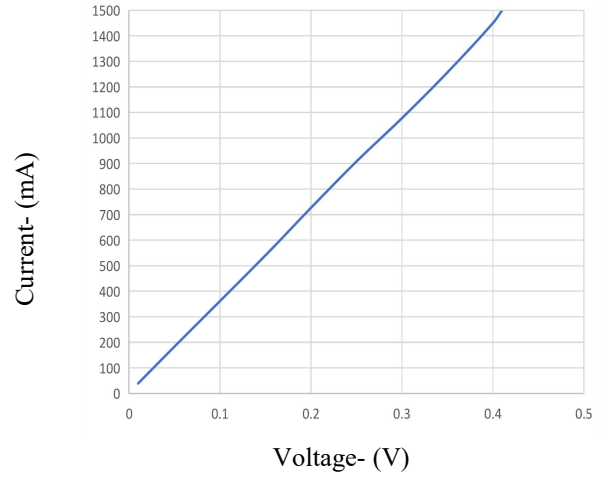


Fig.9 Off state leakage current vs Load voltage characteristics

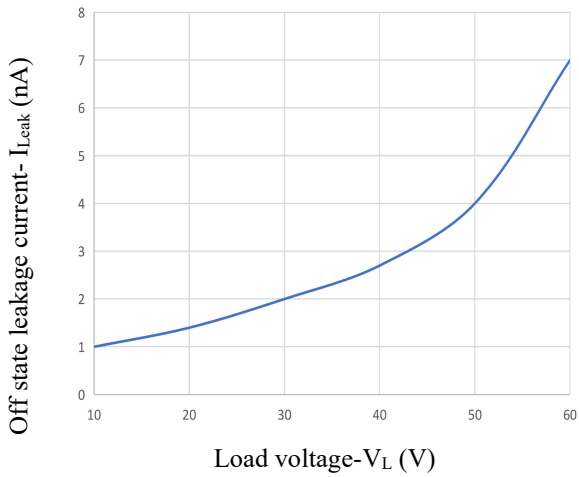


Fig.10 Turn on time vs Forward current characteristics

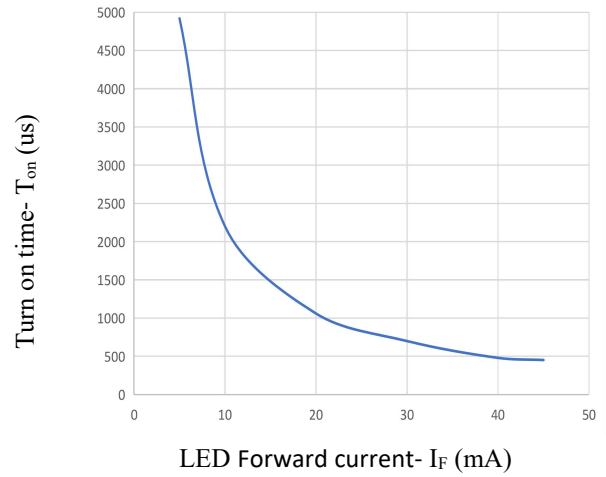
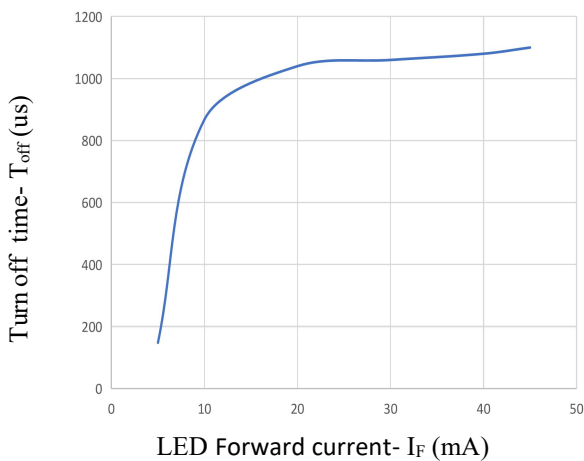
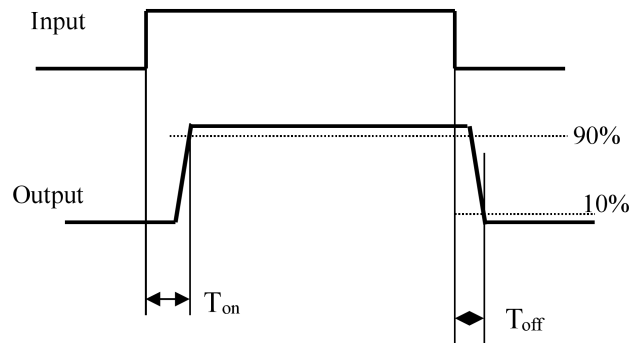


Fig.11 Turn off time vs Forward current characteristics

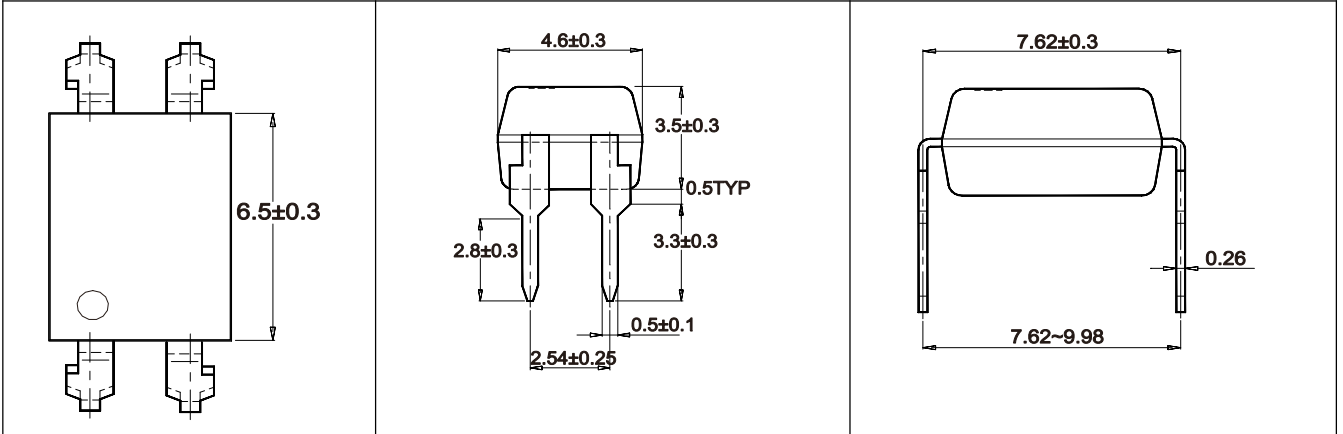


Turn on/off time

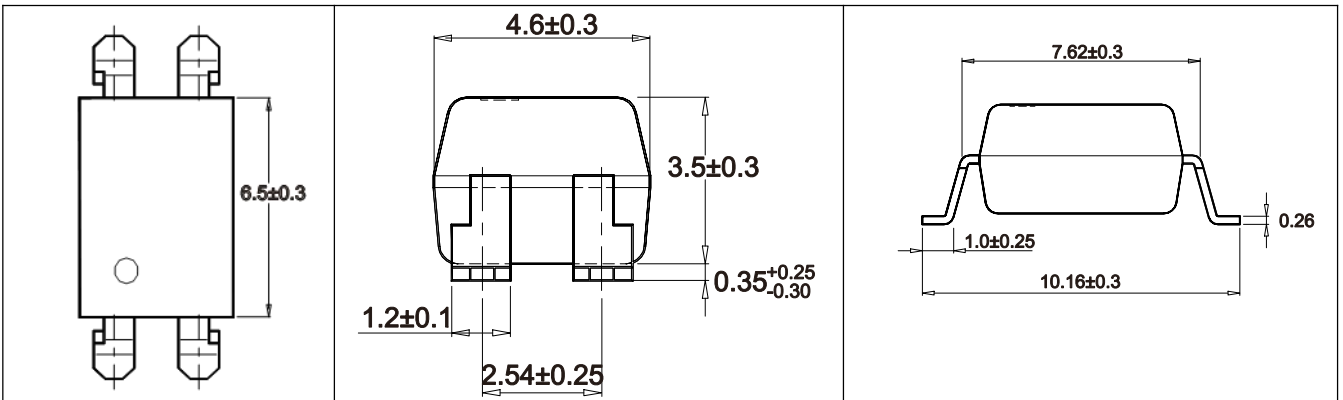


Outline Dimensions

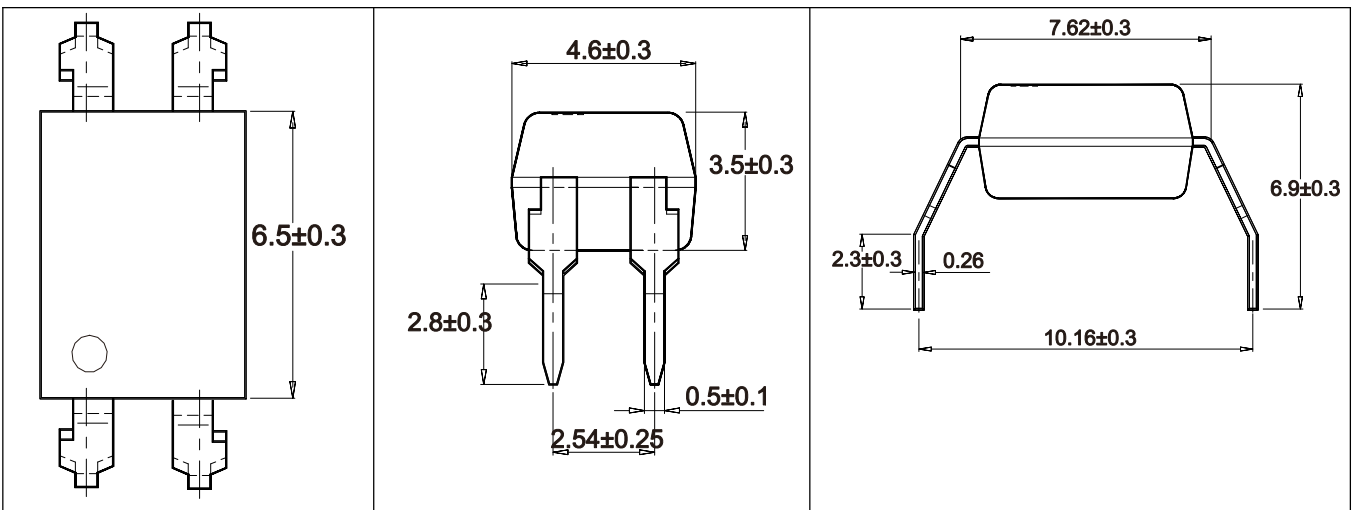
Unit: mm



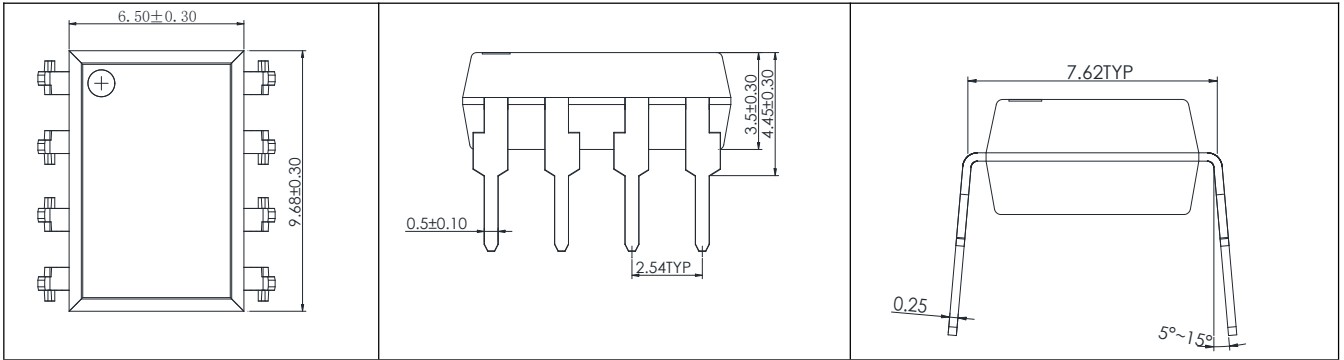
4-pin DIP



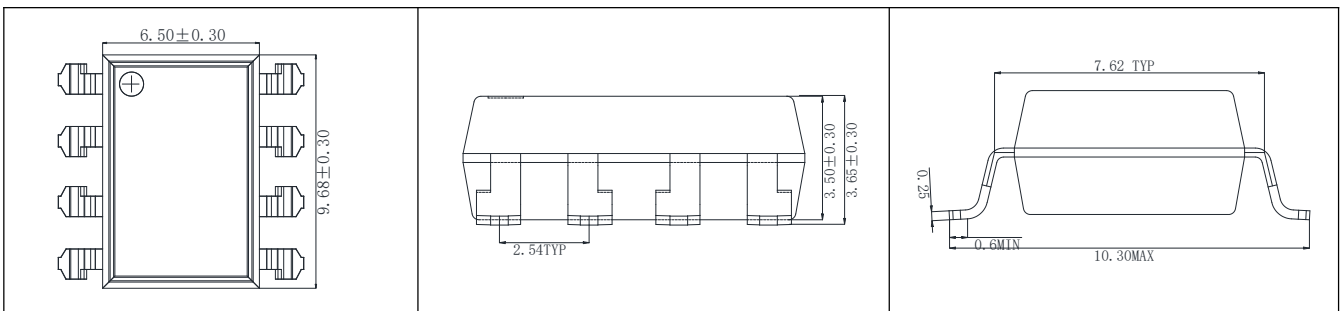
4-pin SMD



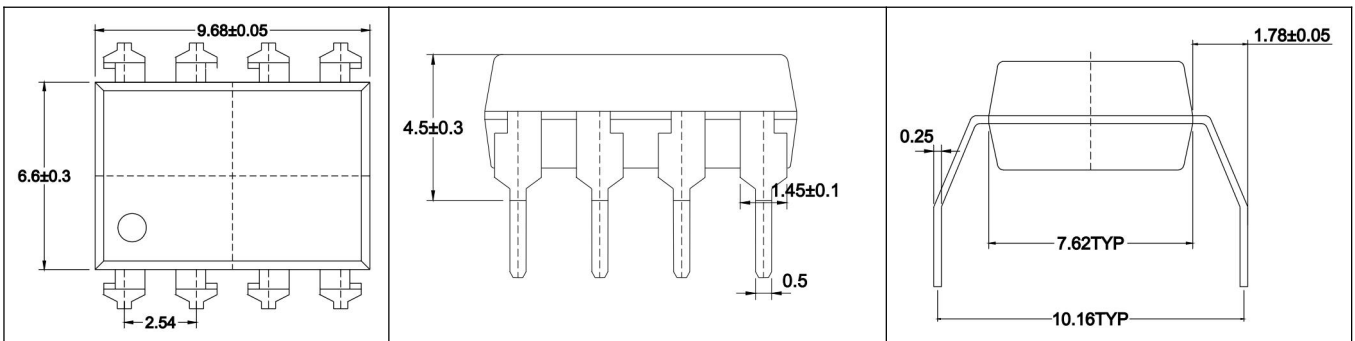
4-pin DIP (M)



8-pin DIP



8pin SMD



8-pin DIP (M)

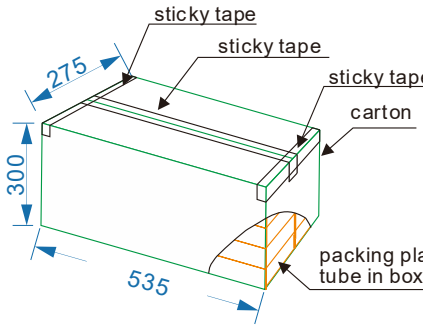
Packing

■ Summary table

Package Type	Packing Form	Quantity per Reel	Quantity per Box	Quantity per Carton	Antistatic Bag Specification	Box Specification	Carton Specification	Note
SMD-8	Reel (φ330mm Blue)	1K pcs/reel	2 reels/box	10 boxes/ctn	380*380mm	340*60*340 mm	620*360*365 mm	Guard band 200mm min.
SMD-4	Reel (φ330mm Blue)	2K pcs/reel	2 reels/box	10 boxes/ctn	380*380mm	340*60*340 mm	620*360*365 mm	
DIP-8	Tube (500*12*11mm)	45 pcs /tube	50 tubes/box	10 boxes /ctn	NA	525*128*56 mm	535*275*300 mm	Endplug (blue) and Endplug (white) keep the direction
DIP-4	Tube (500*12*11mm)	100 pcs /tube	50 tubes/box	10 boxes /ctn	NA	525*128*56 mm	535*275*300 mm	
DIP-4 (M)	Tube (500*13*11mm)	100 pcs/tube	50tubes/box	10 boxes/ctn	NA	525*136*58 mm	535*295*310mm	
DIP-8 (M)	Tube (500*13*11mm)	45 pcs/tube	50tubes/box	10 boxes/ctn	NA	525*136*58 mm	535*295*310 mm	

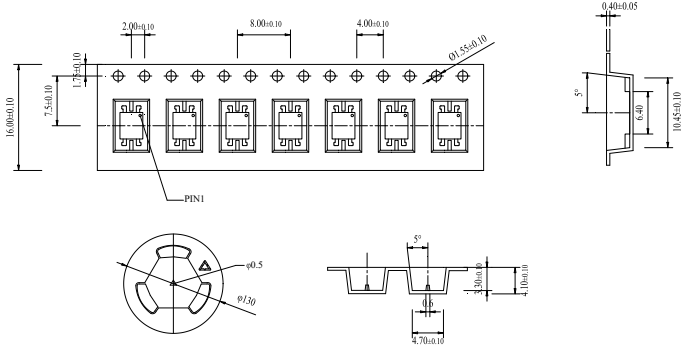
■ DIP-4(tube)

- 1) Qty/ctn: 50000pcs
- 2) Qty/tube: 100pcs
- 3) Qty/box: 50tubes
- 4) Schematic:



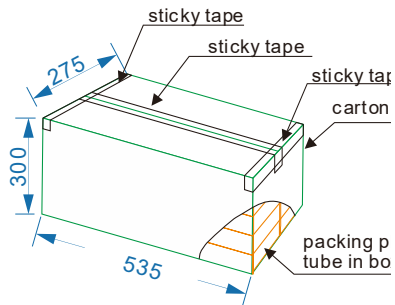
■ SMD-4(Reel)

- 1) Qty/ctn: 40000pcs
- 2) Qty/Reel: 2000pcs
- 3) Inner packing: 2reels/box
- 4) Schematic:



■ DIP-8(tube)

- 1) Qty/ctn: 22500pcs
- 2) Inner packing:
 - i. 45pcs/tube
 - ii. 50 tubes/box.
- 3) Schematic:



■ SMD-8(Reel)

- 1) Qty/ctn: 20000pcs
- 2) Qty/Reel: 1000pcs
- 3) Inner packing: 2reels/box
- 4) Schematic:

