概述 Description

JOR417D8 光继电器由红外发光二极管和光电发生器、MOSFET 耦合组成。
The JOR417D8 Photo relay consist of a photo MOSFET、Photovoltage generator、infrared LED.

特性 Features

- 常开,单刀单掷
  Normally opened (SPST)
- 控制 200V 交流或直流电压
  Control 200V AC or DC voltage
- 开关 180mA 负载
  Switch 180mA load
- 控制低电平模拟信号
  Controls low-level analog sings
- 高灵敏度，低导通电阻
  High sensitivity, low conductivity resistance
- 低电平断态漏电流
  Low-level off state leakage current
- 高隔离电压 5000V
  High isolation voltage 5000V
- 无铅，符合 RoHS 标准
  Lead free, meet RoHS standards
- 符合安规标准：UL ， VDE ， CQC
  Meet safety standard approval: UL , VDE ， CQC

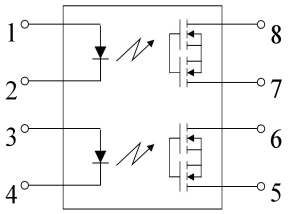
应用 Applications

- 通讯产品(个人电脑,笔记本电脑)
  Communications products (personal computers, laptops)
- 调制解调器/传感器
  Modem/sensor
- 移动电话 /安全设备
  Mobile phones/security equipment
- 测量和测试设备
  Measuring and testing equipment
- 工厂自动化设备
  Plant automation equipment
- 高速检验机器
  High-speed inspection machines

封装和原理图 Package and Schematic Diagram

DIP-8

SMD-8

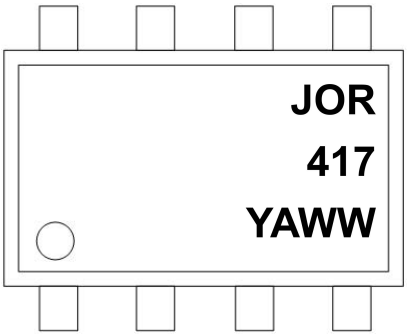


Pin Configuration

1.3. AN	2.4.CA
5. D1	6. D2
7. D3	8. D4

ORDERING AND MARKING INFORMATION

MARKING INFORMATION



JOR：Company Abbr.

417 ：Part Number

YAWW ：LOT NO.

ORDERING INFORMATION

JOR417DX(Y)(Z)-G

JOR – Company Abbr
417 – Part Number
D – DIP or SMD Package
X – 8(Pin Count)
Y – Lead Form Option (M/S/SL/None)
Z – Tape and Reel Option (T1/T2)
G – Green

LABEL INFORMATION

绝缘和安规信息 Insulation and Safety related specifications

项目 Item	符号 Symbol	数值 Value	单位 Unit	备注 Remark
爬电距离 Creepage Distance	L	7.0	mm	从输入端到输出端，沿本体最短距离路径 Measured from input terminals to output terminals, shortest distance path along body
电气间隙 Clearance Distance	L	7.0	mm	从输入端到输出端，通过空气的最短距离 Measured from input terminals to output terminals, shortest distance through air
绝缘距离 Insulation Thickness	DTI	0.4	mm	发射器和探测器之间的绝缘厚度 Insulation thickness between emitter and detector
峰值隔离电压 Maximum Working Insulation Voltage	V_{IORM}	1500	V_{peak}	DIN/EN/DIN EN60747-5-5
瞬态隔离电压 Highest Allowable Overvoltage	V_{IOTM}	7000	V_{peak}	DIN/EN/DIN EN60747-5-5
隔离电压 Isolation Voltage	Viso	5000	Vrms	For 1 min

极限参数 Absolute Maximum Ratings (Ta=25℃)

参数 Parameter		符号 Symbol	额定值 Rating	单位 Unit
发射端 Input	LED 正向电流 LED Forward Current	I_F	50	mA
	LED 反向电压 LED reverse Voltage	V_R	5	V
	峰值正向电流 Peak forward current	I_{FP}	1	A
	输入功率 Power Dissipation	Pin	75	mW
接收端 output	负载电压(AC 峰值) Load voltage (peak AC)	V_L	200	V
	持续负载电流 Continuous load current	I_L	0.18	A
	峰值负载电流 Peak load current	Ipeak	0.54	A
	输出功率 Power Dissipation	Pout	300	mW
总功耗 Total Power Dissipation		Ptot	375	mW
输入输出瞬时耐受电压 Isolation Voltage		Viso	5000	Vrms
工作温度 Operating Temperature		Topr	-40~+85	℃
存储温度 Storage Temperature		T_{stg}	-40~+100	℃
焊接温度 Soldering Temperature		T_{sol}	260	℃

产品特性参数 Electro-optical Characteristics (Ta=25℃)

参数 Parameter		符号 Symbol	条件 Condition	最小 Min.	典型 Typ.	最大 Max.	单位 Unit
发射端 Input	LED 开启电流 LED operate current	I_{Fon}	I_L = 0.18A	-	1.2	3	mA
	LED 关断电流 LED turn off current	I_{Foff}	I_L = 0.18A	0.05	1.1	-	mA
	LED 正向压降 LED dropout voltage	V_F	I_F=5mA	1	1.3	1.4	V
接收端 Output	导通电阻 On resistance	R_{on}	I_F = 5mA , I_L= 0.18A Within 1s on time	-	2.2	5	Ω
	关断漏电 Off state leakage current	I_{Leak}	I_F = 0 mA V_L= 200V	-	-	1000	nA
传输特性 Transfer Characteristics	开启时间 Turn on time	T_{on}	I_F = 5mA I_L = 0.18A	-	0.36	2	ms
	关断时间 Turn off time	T_{off}	I_F = 5mA I_L = 0.18A	-	0.12	1	ms
	I/O 电容 I/O capacitance	C_{ISO}	f = 1 MHz V_B =0V	-	0.8	1.5	pF
	初始 I/O 隔离电阻 Initial I/O isolation resistance	R_{ISO}	500 V DC	1000	-	-	MΩ

典型光电特性曲线 Typical Electro-Optical Characteristics Curves

Fig.1 LED dropout voltage vs. Ambient temperature

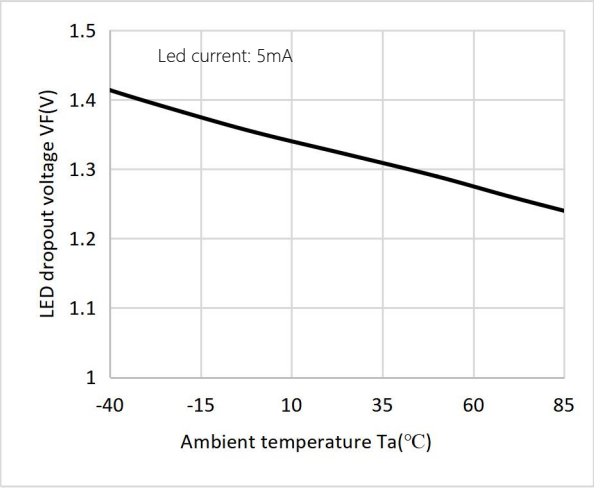


Fig.2 Output Current vs. Output Voltage

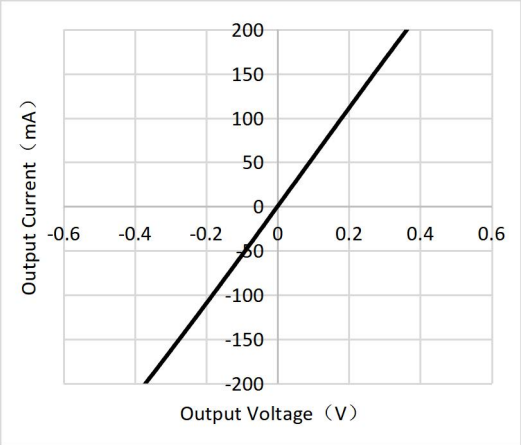


Fig.3 On resistance vs. Ambient temperature

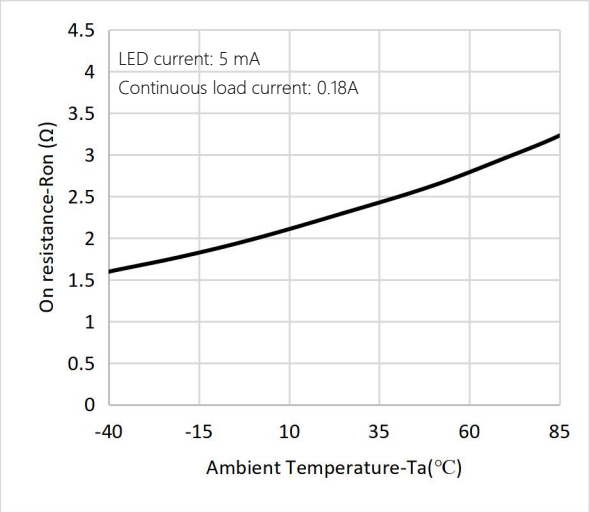


Fig.4 Load current vs. Ambient temperature

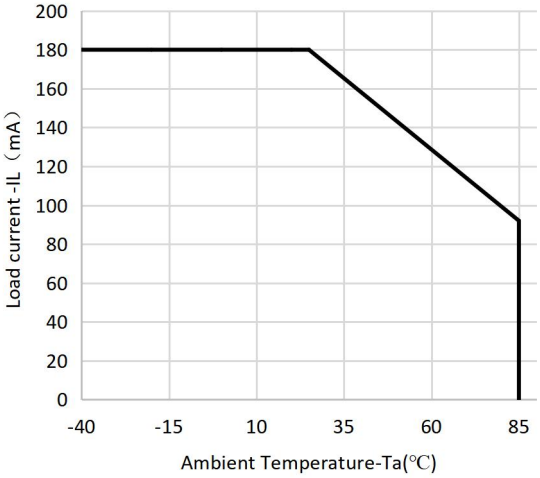


Fig.5 LED operate current vs. Ambient temperature

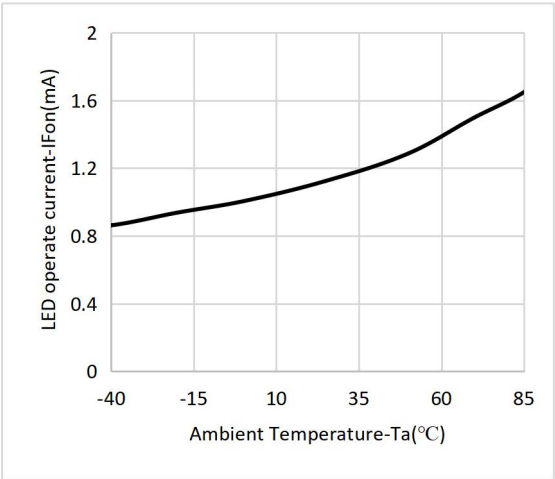


Fig.6 LED turn off current vs. Ambient temperature

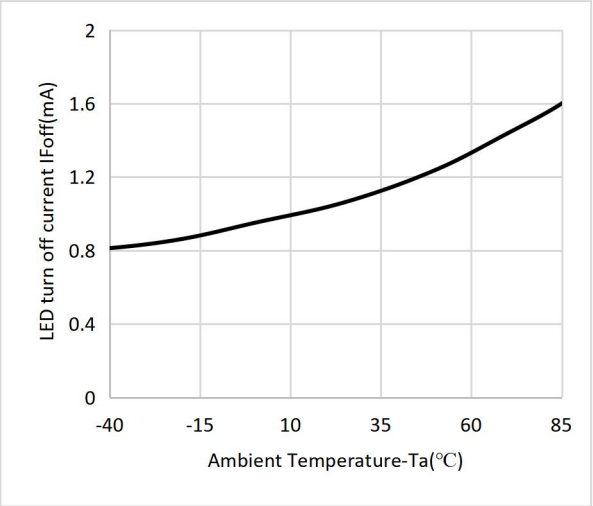


Fig.7 Turn on time vs. Ambient temperature

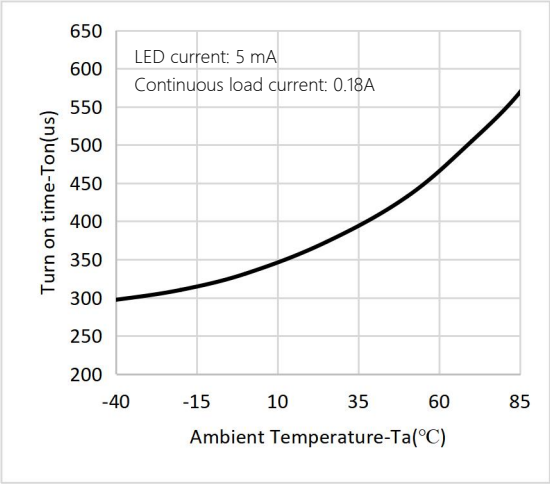


Fig.8 Turn off time vs. Ambient temperature

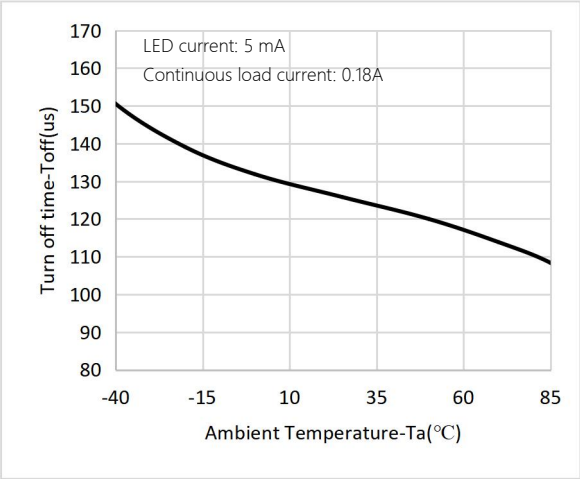


Fig.9 Turn on time vs. LED forward current

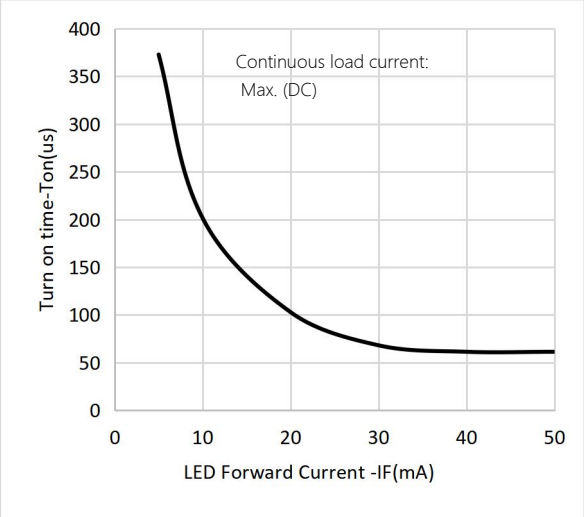


Fig.10 Turn off time vs. LED forward current

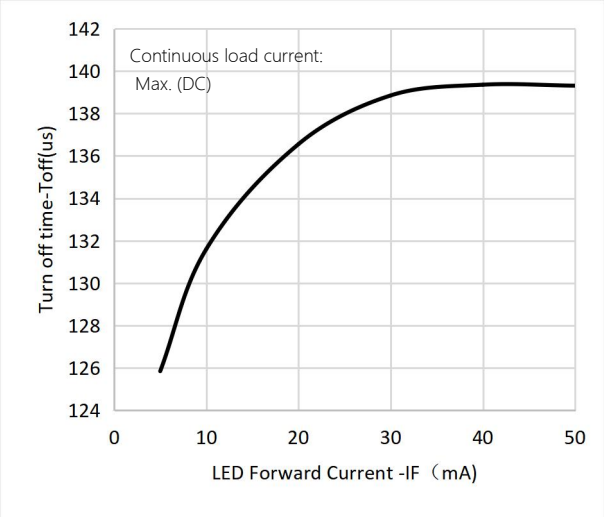
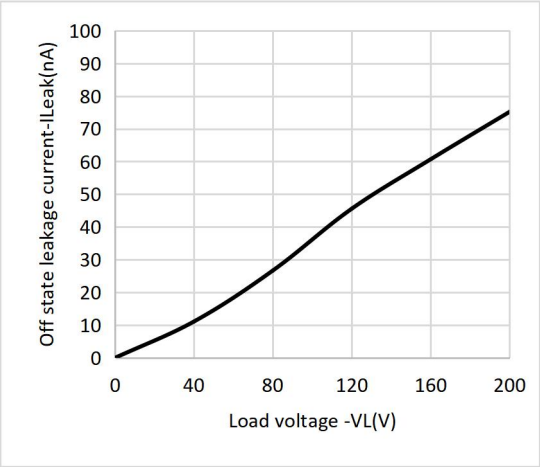
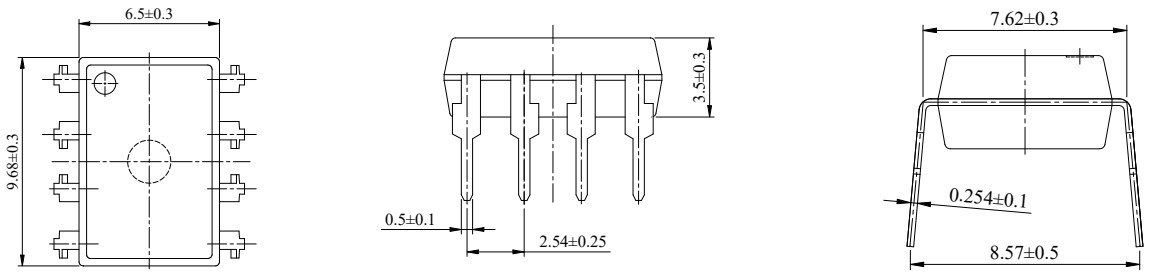


Fig.11 Off state leakage current vs Load voltage

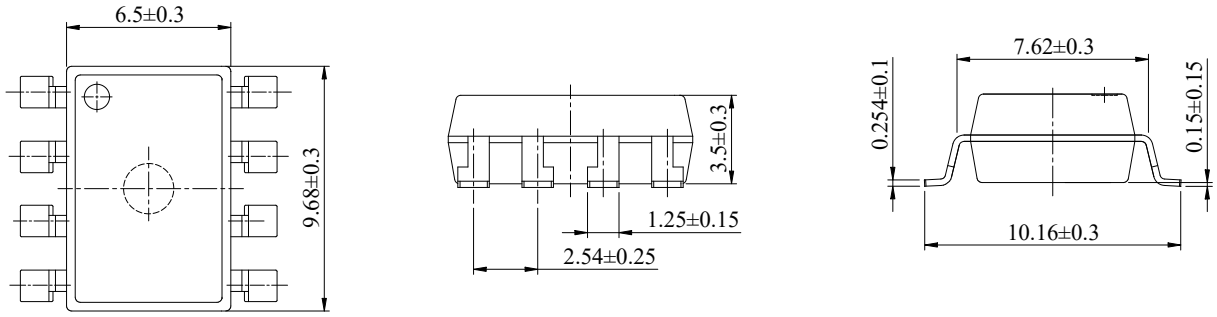


外形尺寸 Outline Dimensions

DIP8

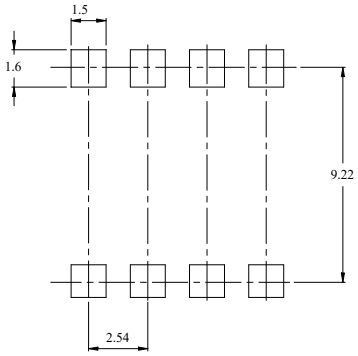


SMD8



单位 Unit: mm

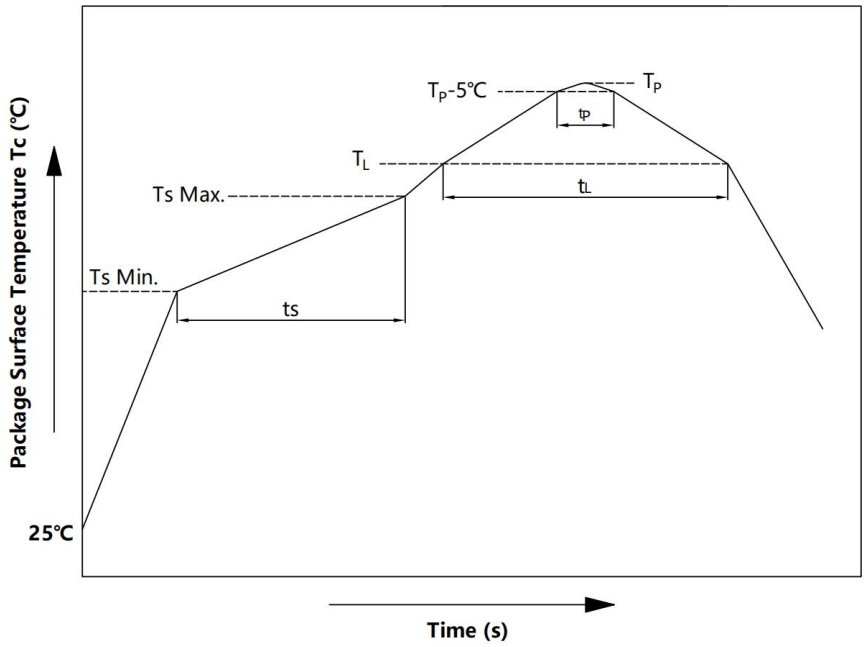
建议焊盘布局 Recommended Pad Layout



单位 Unit: mm

注：上图为产品正视图。
Note：The picture above is the front view of the product.

回流焊温度曲线图 Solder Reflow Profile



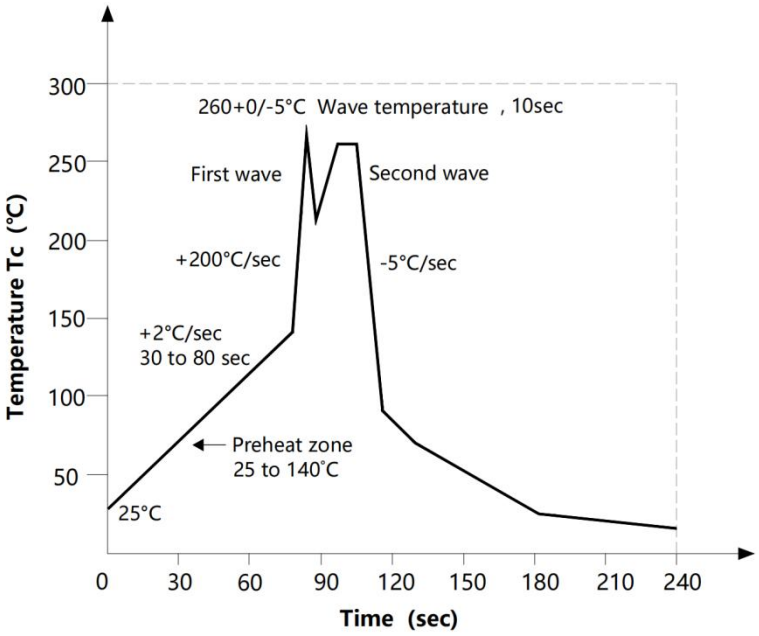
项目 Item	符号 Symbol	最小值 Min.	最大值 Max.	单位 Unit
预热温度 Preheat Temperature	Ts	150	200	℃
预热时间 Preheat Time	ts	60	120	s
升温速率 Ramp-Up Rate (T_L to T_P)	-	-	3	℃/s
液相线温度 Liquidus Temperature	T_L	217		℃
时间高于 T_L Time Above T_L	t_L	60	150	s
峰值温度 Peak Temperature	T_P	-	260	℃
Tc 在(T_P-5)和 T_P 之间的时间 Time During Which Tc Is Between (T_P-5) and T_P	t_p	-	30	s
降温速率 Ramp-down Rate(T_P to T_L)	-	-	6	℃/s

注 Note:

建议在所示的温度和时间条件下进行回流焊，最多不能超过三次;

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

波峰焊温度曲线图 Wave Soldering Profile



手工烙铁焊接 Soldering with hand soldering iron

A. 手工烙铁焊仅用于产品返修或样品测试；

Hand soldering iron is only used for product rework or sample testing;

B. 手工烙铁焊要求：温度 360℃ ± 5℃，时间≤3s。

Manual soldering method Temperature: 360℃ ± 5℃, within 3s.

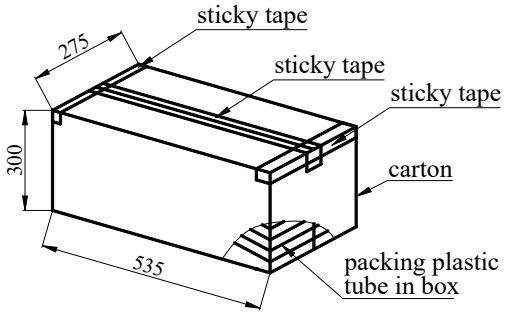
包装 Packing

■ 汇总表 Summary table

封装形式	包装方式	盘数量	盒数量	箱数量	静电袋规格	盒规格	箱(双瓦楞)规格	备注
DIP8	管装 (500*12*11mm)	45 只/管	50 管/盒	10 盒/箱	不适用	52.5*12.8*5.6cm	53.5*27.5*30cm	每管使用蓝白胶塞，方向须一致
SMD8	卷盘 (ϕ330mm 蓝盘)	1000 只/盘	2 盘/盒	10 盒/箱	380*380mm	34*6*34cm	62*36*36.5cm	
Package Type	Packing Form	Quantity per Reel	Quantity per Box	Quantity per Carton	Antistatic Bag Specification	Box Specification	Carton Specification	Note
DIP8	Tube (500*12*11mm)	45pcs /tube	50 tubes/box	10 boxes /ctn	NA	52.5*12.8*5.6cm	53.5*27.5*30cm	Endplug (blue) and Endplug (white) keep the direction
SMD8	Reel (ϕ330mm Blue)	1000 pcs /reel	2 reels /box	10 boxes /ctn	380*380mm	34*6*34cm	62*36*36.5cm	

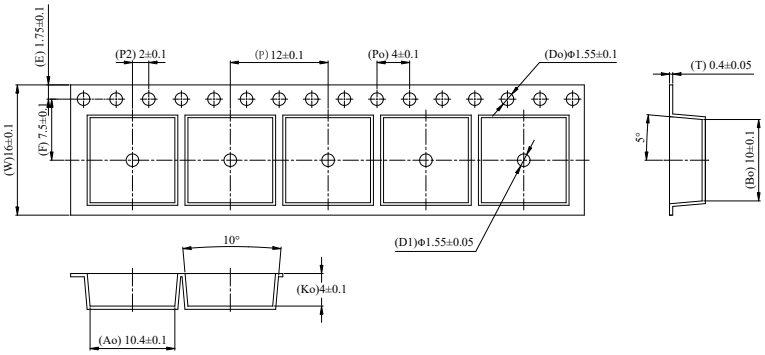
■ DIP8 编带包装 Tape & Reel

1) 每管数量：45 只。
   Qty/reel：45 pcs.
2) 每箱数量：22500 只。
   Qty/ctn：22500 pcs.
3) 内包装：每盒 50 管。
   Inner packing：50 tube/box.
4) 示意图 Schematic：



■ SMD8 编带包装 Tape & Reel

5) 每卷数量：1000 只。
   Qty/reel：1000 pcs.
6) 每箱数量：20000 只。
   Qty/ctn：20000 pcs.
7) 内包装：每盒 2 盘。
   Inner packing：2 reels/box.
8) 示意图 Schematic：



单位 Unit：mm

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