查询PS7142L-1A-E3供应商 捷多邦，专业PCB打样工厂，24小时加急出货

DATA SHEET

CEL

NEC's 6-PIN DIP 400 V BREAK DOWN VOLTAGE 1-CH OPTICAL COUPLED MOS FET

PS7142-1A PS7142L-1A

FEATURES

- **1 CHANNEL TYPE:**
  1 a Output
- **LOW LED OPERATING CURRENT:**
  I_F= 2mA
- **DESIGNED FOR AC/DC SWITCHING LINE CHANGER**
- **SMALL PACKAGE:**
  6-Pin DIP
- **LOW OFFSET VOLTAGE**
- **PS7142L-1A:**
  Surface mount type
- **SAFETY STANDARDS:**
  UL approved: File No. E72422 (S)
  BSI approved: File No. 8245/8246
  CSA approved: File No. CA 101391

DESCRIPTION

NEC's PS7142-1A and PS7142L-1A are solid state relays containing GaAs LEDs on the light emitting side (input side) and MOS FETs on the output side.

They are suitable for analog signal control because of their low offset and high linearity.

The PS7142L-1A has a surface mount type lead.

APPLICATION

- **Exchange Equipment**
- **Measurement Equipment**
- **FA/OA Equipment**

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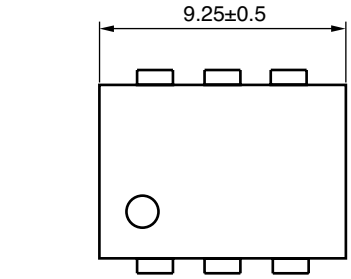
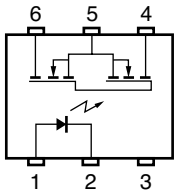
PACKAGE DIMENSIONS (UNIT: mm)

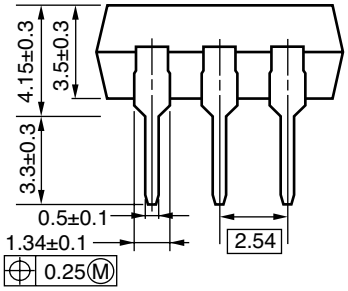
PS7142-1A

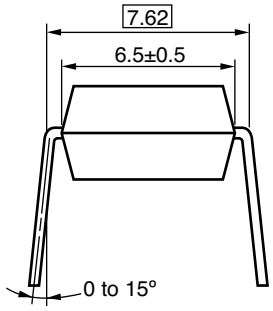


TOP VIEW

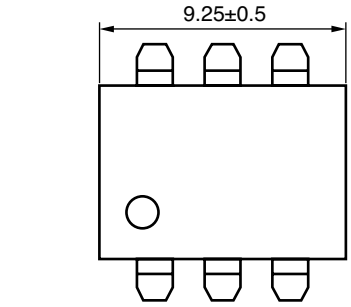


1. LED Anode
2. LED Cathode
3. NC
4. MOS FET Drain
5. MOS FET Source
6. MOS FET Drain

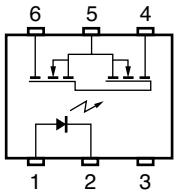




PS7142L-1A



TOP VIEW



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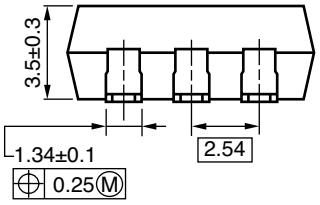
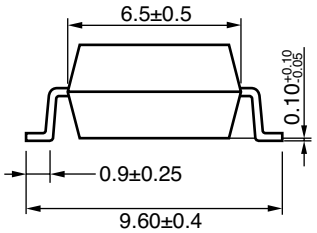




ORDERING INFORMATION

PART NUMBER	PACKAGE	PACKING STYLE	APPLICATION PART NUMBER *1
PS7142-1A	6-pin DIP	Magazine case 50 pcs	PS7142-1A
PS7142L-1A			PS7142L-1A
PS7142L-1A-E3		Embossed Tape 1000 pcs/reel	
PS7142L-1A-E4			

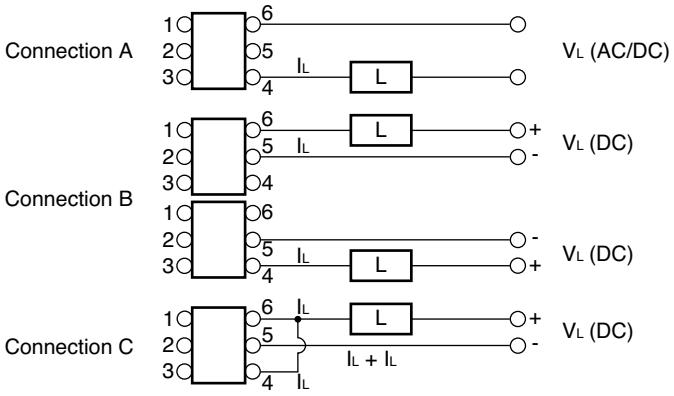
***1** For the application of the Safety Standard, following part number should be used.

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C, unless otherwise Specified)

PARAMETER			SYMBOL	RATINGS	UNIT
Diode	Forward Current (DC)		I_F	50	mA
	Reverse Voltage		V_R	5.0	V
	Power Dissipation		P_D	50	mW
	Peak Forward Current *1		I_{FP}	1	A
MOS FET	Break Down Voltage		V_L	400	V
	Continuous Load Current *2	Connection A	I_L	200	mA
		Connection B		250	
		Connection C		400	
	Pulse Load Current *3 (AC/DC Connection)		I_{LP}	400	mA
	Power Dissipation		P_D	560	mW
Isolation Voltage *4			BV	1 500	Vr.m.s.
Total Power Dissipation			P_T	610	mW
Operating Ambient Temperature			T_A	−40 to +85	°C
Storage Temperature			T_{stg}	−40 to +100	°C

***1** PW = 100 μs, Duty Cycle = 1 %

***2** Conditions: $I_F \geq 2$ mA. The following types of load connections are available.



***3** PW = 100 ms, 1 shot

***4** AC voltage for 1 minute at T_A = 25 °C, RH = 60 % between input and output

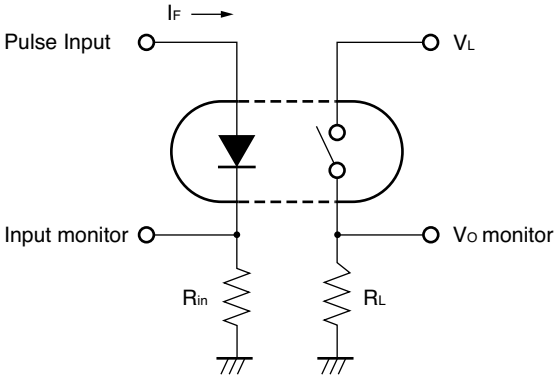
RECOMMENDED OPERATING CONDITIONS (T_A = 25°C)

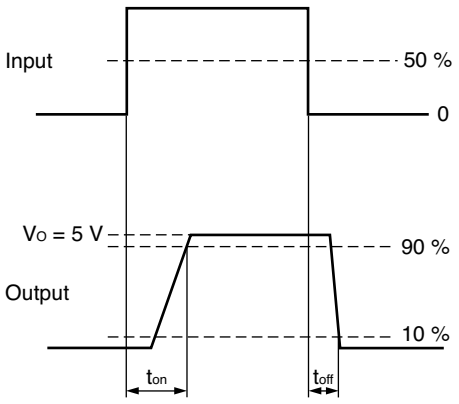
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT
LED Operating Current	I_F	2	10	20	mA
LED Off Voltage	V_F	0		0.5	V

ELECTRICAL CHARACTERISTICS (T_A = 25°C)

PARAMETER		SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Diode	Forward Voltage	V_F	I_F = 10 mA		1.2	1.4	V
	Reverse Current	I_R	V_R = 5 V			5.0	μA
MOS FET	Off-state Leakage Current	I_{Loff}	V_D = 400 V		0.03	1.0	μA
	Output Capacitance	C_{out}	V_D = 0 V, f = 1 MHz		225		pF
Coupled	LED On-state Current	I_{Fon}	I_L = 200 mA			2.0	mA
	On-state Resistance	R_{on1}	I_F = 10 mA, I_L = 10 mA		6.0	10	Ω
		R_{on2}	I_F = 10 mA, I_L = 200 mA, t ≤ 10 ms				
	Turn-on Time *1	t_{on}	I_F = 10 mA, V_O = 5 V, R_L = 500 Ω,		0.8	5.0	ms
	Turn-off Time *1	t_{off}	PW ≥ 10 ms		0.02	0.2	
	Isolation Resistance	R_{I-O}	V_{I-O} = 1.0 kV_{DC}	10^9			Ω
	Isolation Capacitance	C_{I-O}	V = 0 V, f = 1 MHz		1.1		pF

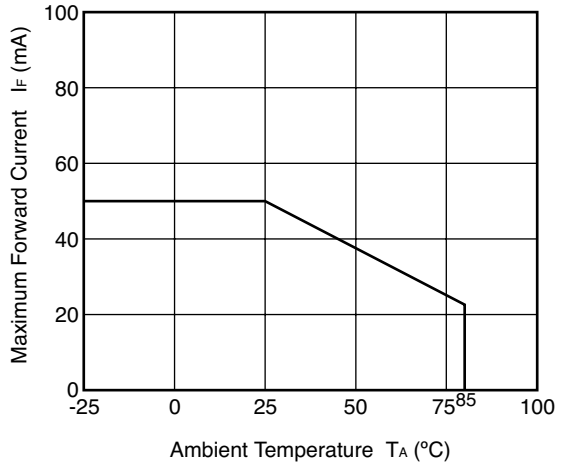
***1** Test Circuit for Switching Time



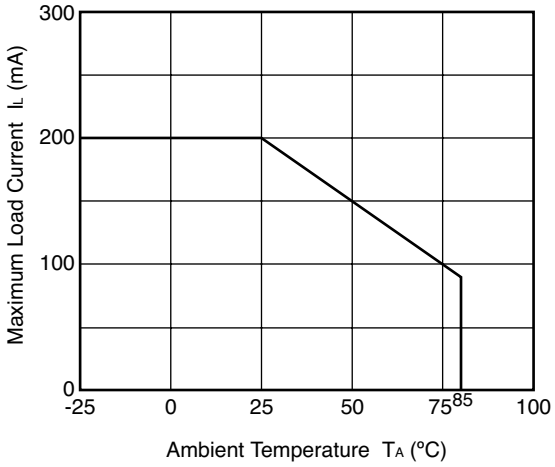


TYPICAL CHARACTERISTICS (TA = 25ºC, unless otherwise specified)

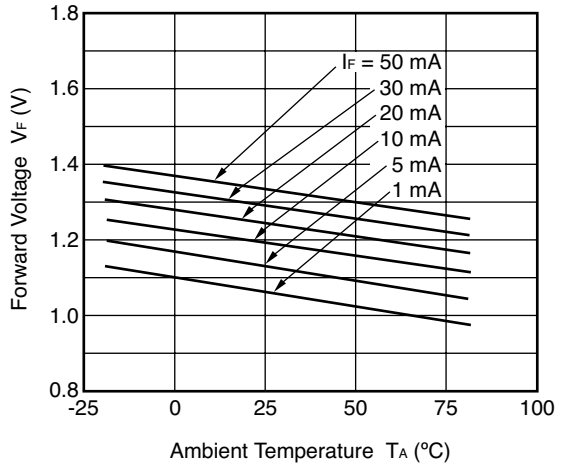
MAXIMUM FORWARD CURRENT vs. AMBIENT TEMPERATURE



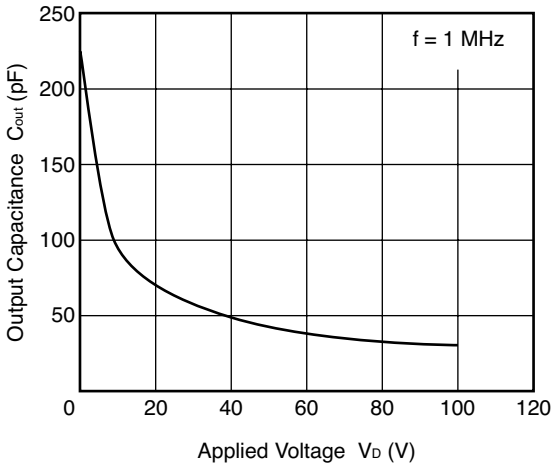
MAXIMUM LORD CURRENT vs. AMBIENT TEMPERATURE



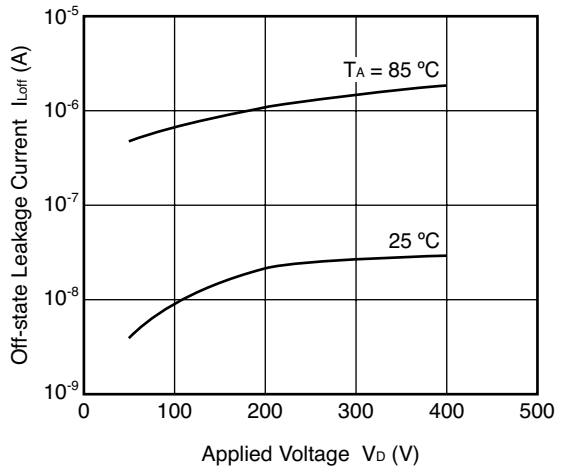
FORWARD VOLTAGE vs. AMBIENT TEMPERATURE



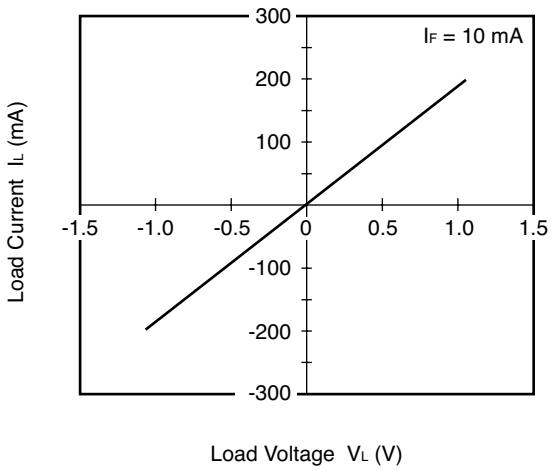
OUTPUT CAPACITANCE vs. APPLIED VOLTAGE



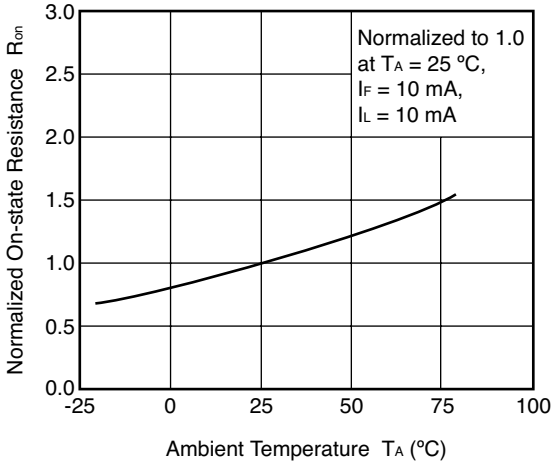
OFF-STATE LEAKAGE CURRENT vs. APPLIED VOLTAGE



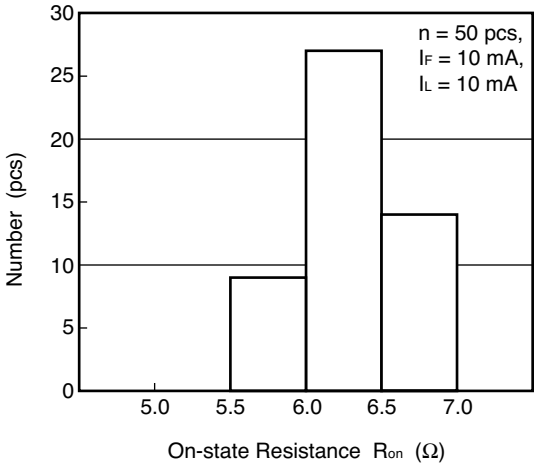
LORD CURRENT vs. LORD VOLTAGE



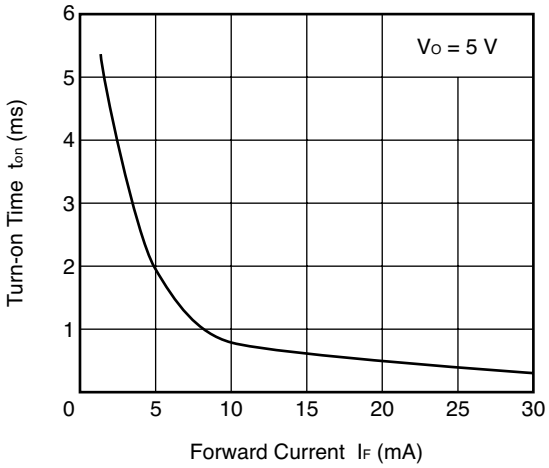
NORMALIZED ON-STATE RESISTANCE
vs. AMBIENT TEMPERATURE



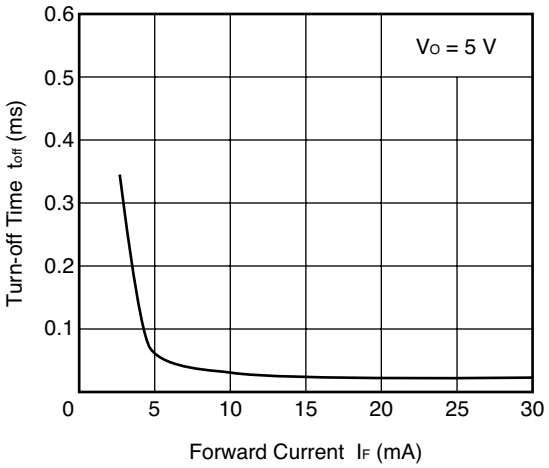
ON-STATE RESISTANCE DISTRIBUTION



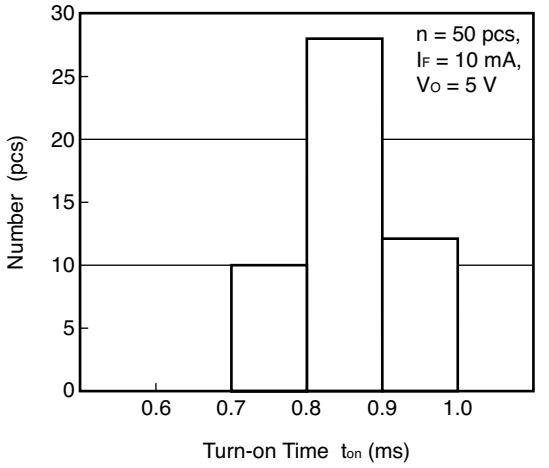
TURN-ON TIME vs. FORWARD CURRENT



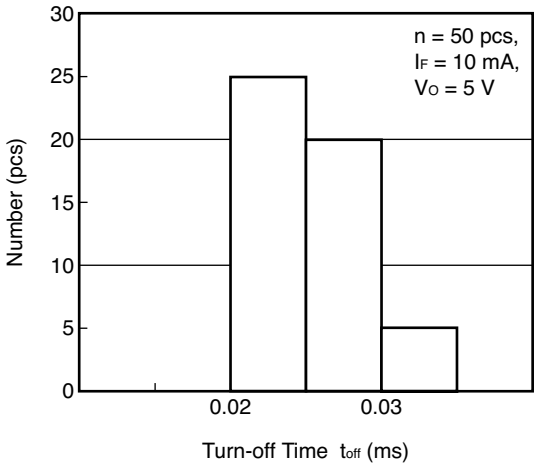
TURN-OFF TIME vs. FORWARD CURRENT



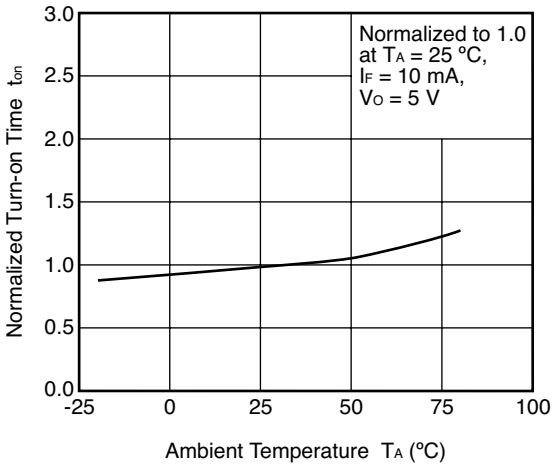
TURN-ON TIME DISTRIBUTION



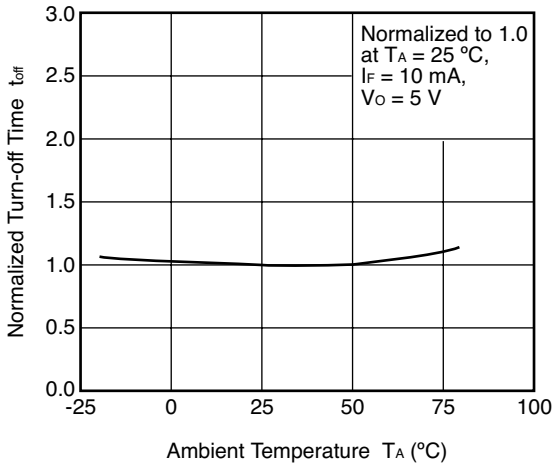
TURN-OFF TIME DISTRIBUTION



NORMALIZED TURN-ON TIME vs.
AMBIENT TEMPERATURE



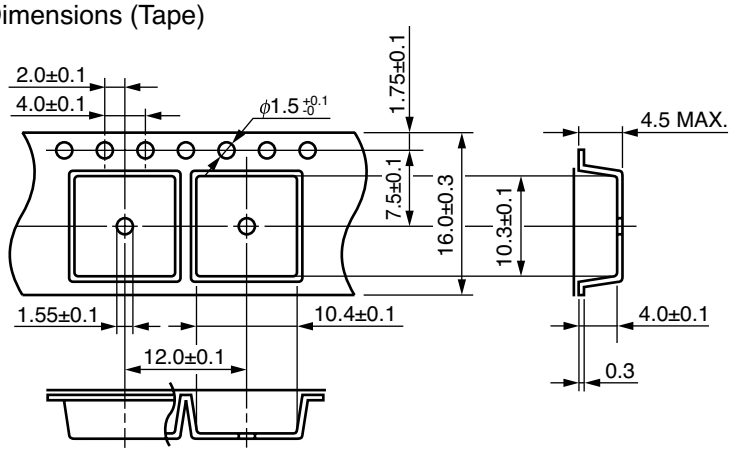
NORMALIZED TURN-OFF TIME vs.
AMBIENT TEMPERATURE



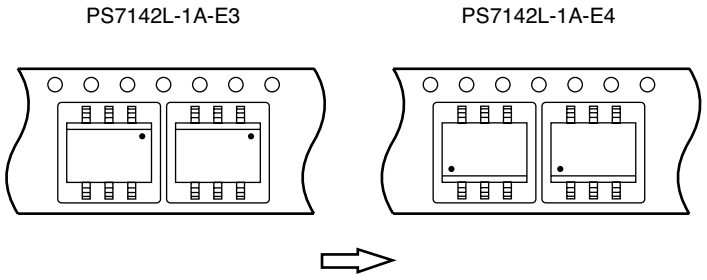
Remark The graphs indicate nominal characteristics.

TAPING SPECIFICATIONS (UNIT:mm)

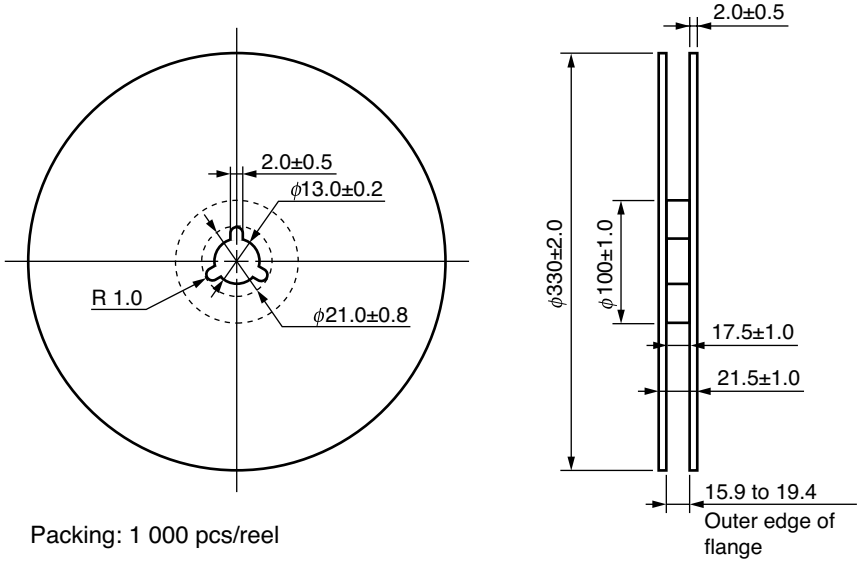
Outline and Dimensions (Tape)



Tape Direction



Outline and Dimensions (Reel)



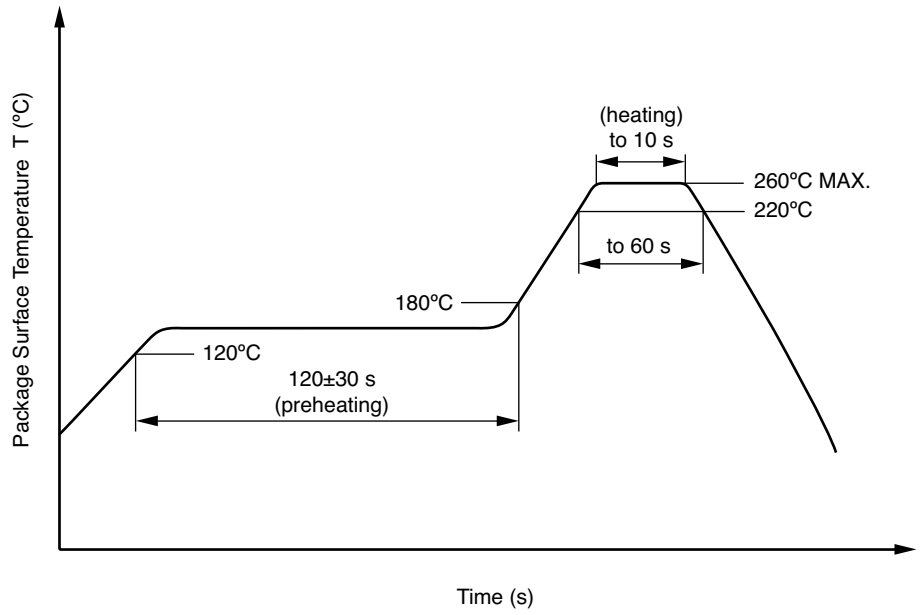
Packing: 1 000 pcs/reel

RECOMMENDED SOLDERING CONDITIONS

(1) Infrared reflow soldering

• Peak reflow temperature	260°C or below (package surface temperature)
• Time of peak reflow temperature	10 seconds or less
• Time of temperature higher than 220°C	60 seconds or less
• Time to preheat temperature from 120 to 180°C	120±30 s
• Number of reflows	Three
• Flux	Rosin flux containing small amount of chlorine (The flux with a maximum chlorine content of 0.2 Wt% is recommended.)

Recommended Temperature Profile of Infrared Reflow



(2) Wave soldering

• Temperature	260°C or below (molten solder temperature)
• Time	10 seconds or less
• Preheating conditions	120°C or below (package surface temperature)
• Number of times	One
• Flux	Rosin flux containing small amount of chlorine (The flux with a maximum chlorine content of 0.2 Wt% is recommended.)

(3) Cautions

• Fluxes

Avoid removing the residual flux with freon-based and chlorine-based cleaning solvent.

Life Support Applications
These NEC products are not intended for use in life support devices, appliances, or systems where the malfunction of these products can reasonably be expected to result in personal injury. The customers of CEL using or selling these products for use in such applications do so at their own risk and agree to fully indemnify CEL for all damages resulting from such improper use or sale.