

Features

- 214: 4 pin, single channel (1 form A)
- 224: 8 pin, dual channel (2 form A)
- Normally opened (SPST)
- Control 400V AC or DC voltage
- Switch 120mA load
- Controls low-level analog signal
- High sensitivity, low on-resistance
- Low-level off state leakage current
- High isolation voltage 5000Vrms
- 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

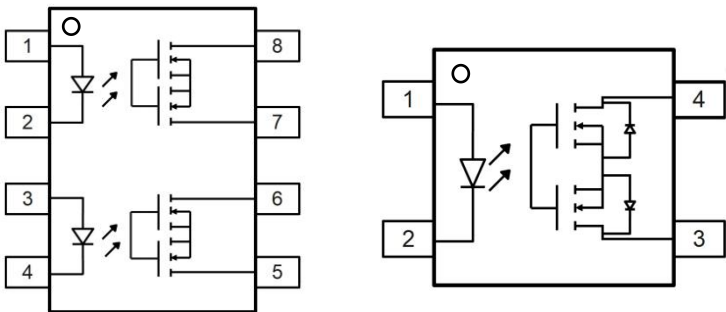
Description

The ICPR214/224 series Photo Relay consist of photo MOSFET、Photoelectric voltage generator and infrared LED.

The ICPR214/224 series achieves low on-resistance and has a good cost-performance.

ICPR214 is packaged in a 4-pin package (DIP/SMD).

ICPR224 is packaged in a 8-pin package (DIP/SMD).



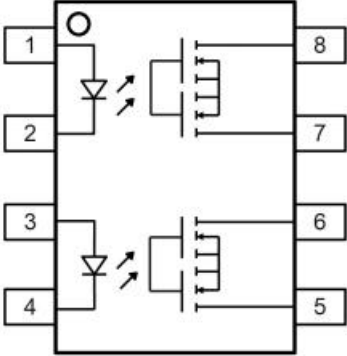
ORDERING INFORMATION

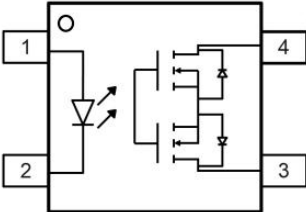
Outline	Part Number	Package	Marking	Packing	Packing Size	Quantity
	ICPR214-400E	DIP4	ICPR 214 /YYWW B	Tube	500mm	100
	ICPR214-450E	DIP4-SL		Reel	13 "	1000
	ICPR224-800E	DIP8	ICPR 224 /YYWW B	Tube	500mm	45
	ICPR224-850E	DIP8-SL		Reel	13 "	1000

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PIN CONFIGURATION AND FUNCTIONS

	Pin	Name
	1	Anode
	2	Cathode
	3	Anode
	4	Cathode
	5	Drain 1
	6	Drain 2
	7	Drain 3
	8	Drain 4

	Pin	Name
	1	Anode
	2	Cathode
	3	Drain 1
	4	Drain 2

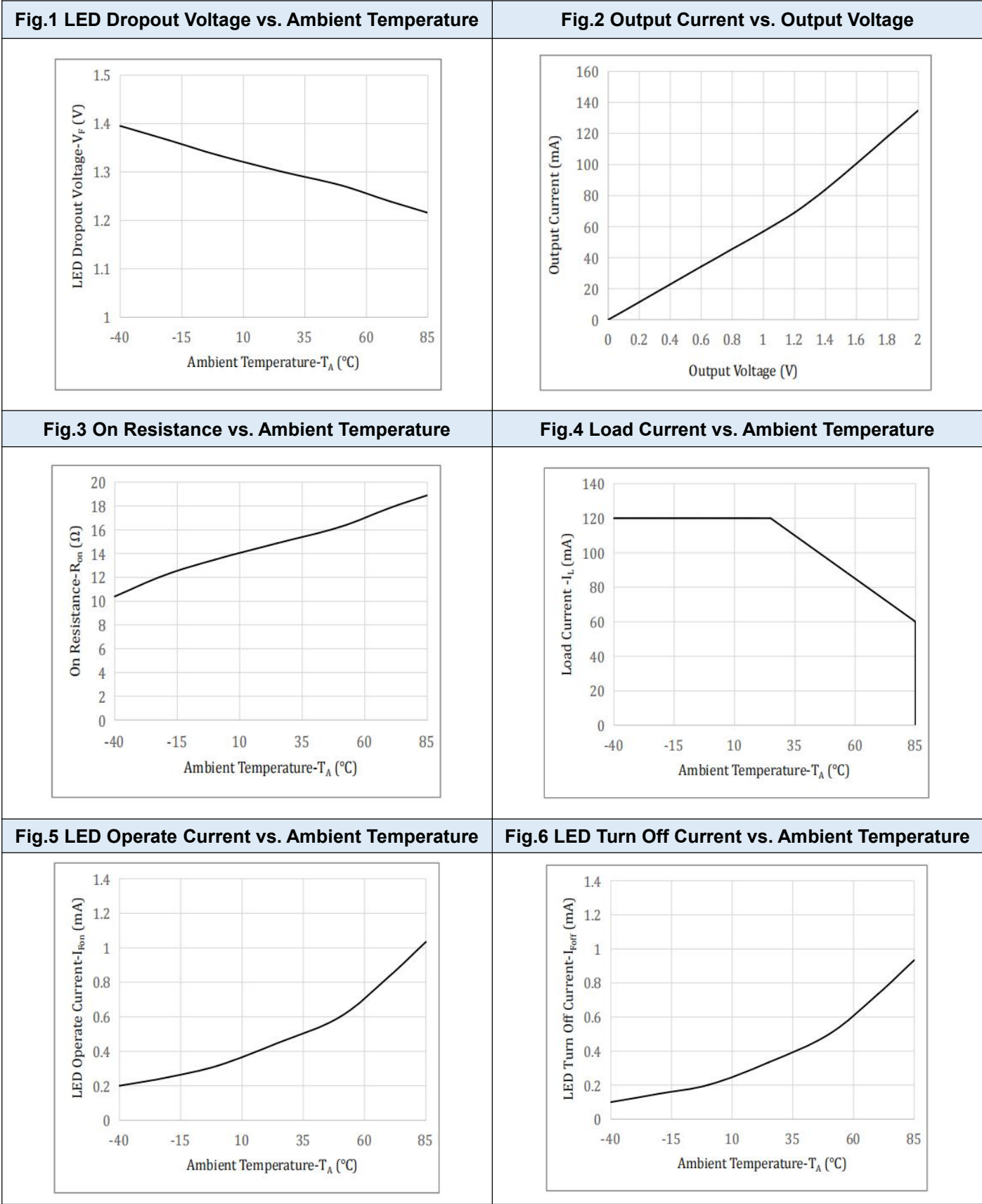
ABSOLUTE MAXIMUM RATINGS

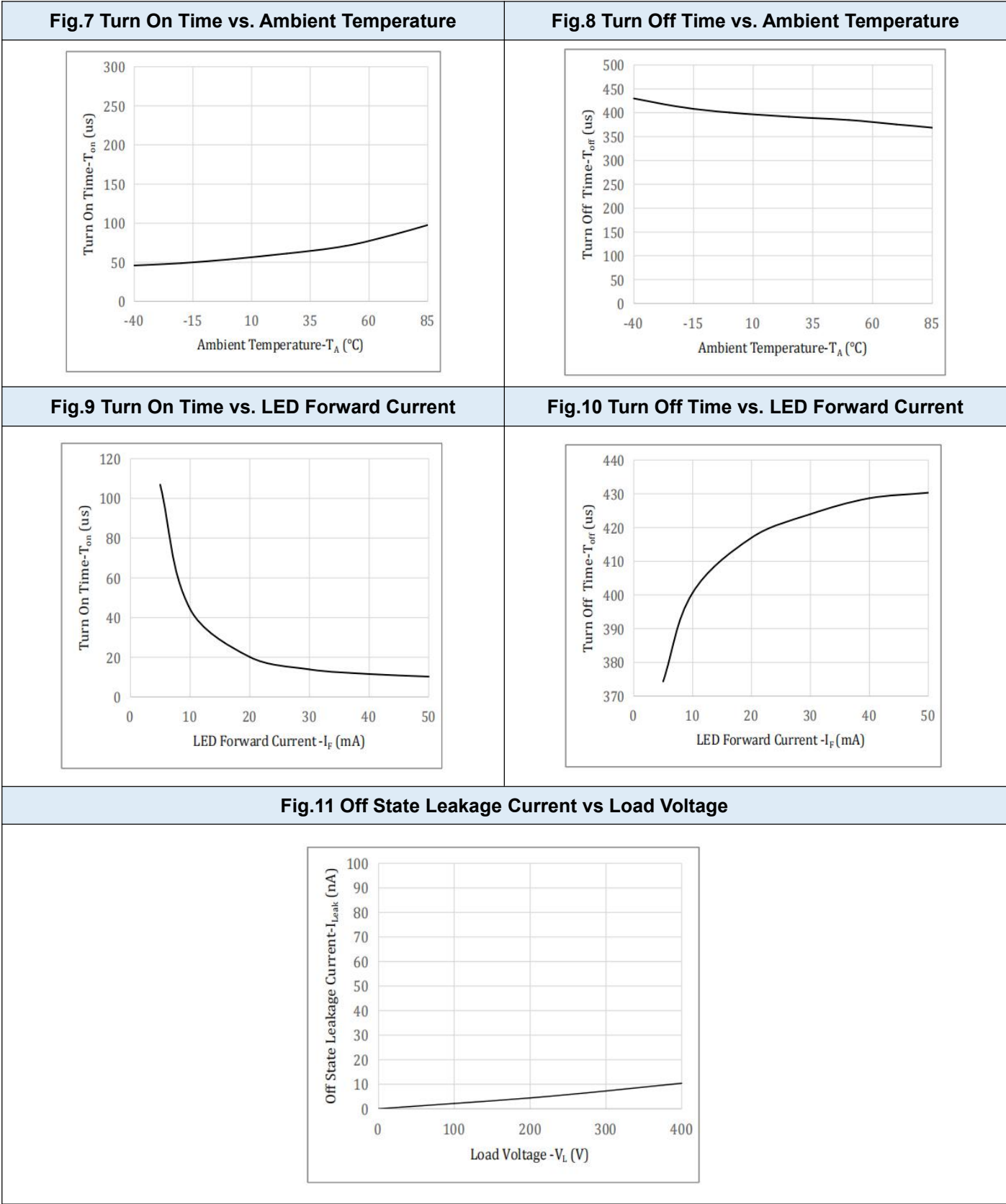
Item		Symbol	Value	Unit	Note	
Input	LED forward current		I _F	50	mA	
	LED reverse voltage		V _R	5	V	
	Peak forward current		I _{FP}	1	A	f = 100 Hz duty cycle = 0.1%
	Power dissipation		P	75	mW	
Output	Load Voltage (Peak AC)		V _L	400	V	
	Continuous load current		I _L	0.12	A	
	Peak load current		I _{peak}	0.3	A	t _m = 1min, duty cycle = 0.1%, cumulative of 5minutes over lifetime
	Power Dissipation	214	P _{OUT}	500	mW	
		224		800	mW	
I/O isolation voltage			V _{iso}	5000	V _{rms}	RH ≤ 50% t _m =1minute
Operating Temperature			T _{opr}	−40°C ~ 85°C	°C	
Storage Temperature			T _{stg}	−40°C ~ 100°C	°C	
Soldering Temperature			T _{sol}	260	°C	

ELECTRICAL OPTICAL CHARACTERISTICS (T_a=25°C)

Parameter		Symbol	Min	Typ	Max	Unit	Test Condition
Input	LED operate current	I _{Fon}	-	0.5	3	mA	I _L = 0.12A
	LED turn off current	I _{Foff}	0.1	0.4	-	mA	I _L = 0.12A
	LED dropout Voltage	V _F	1	1.3	1.5	V	I _F = 5mA
Output	On resistance	R _{on}	-	15	20	Ω	I _F = 5mA ; I _L = 0.12A. Within 1s on time
	Off state leakage current	I _{Leak}	-	-	1000	nA	I _F = 0mA; V _L = 400V
Transfer Characteristics	Turn on time*	t _{on}	-	60	2000	us	I _F = 5mA ; I _L =0.12A
	Turn off time*	t _{off}	-	400	1000	us	
	I/O capacitance	C _{iso}	-	0.8	1.5	pF	f = 1 MHz, V _B =0V
	Initial I/O isolation	R _{iso}	1000	-	-	MΩ	500V DC

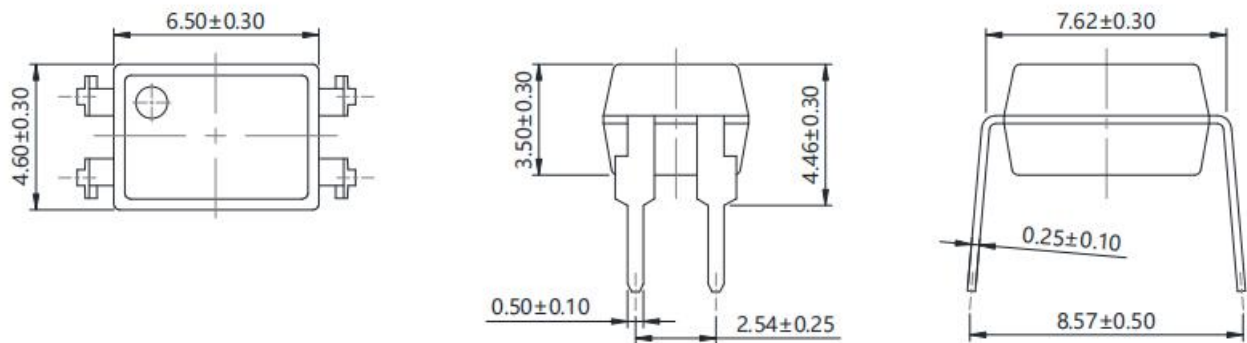
CHARACTERISTIC CURVES



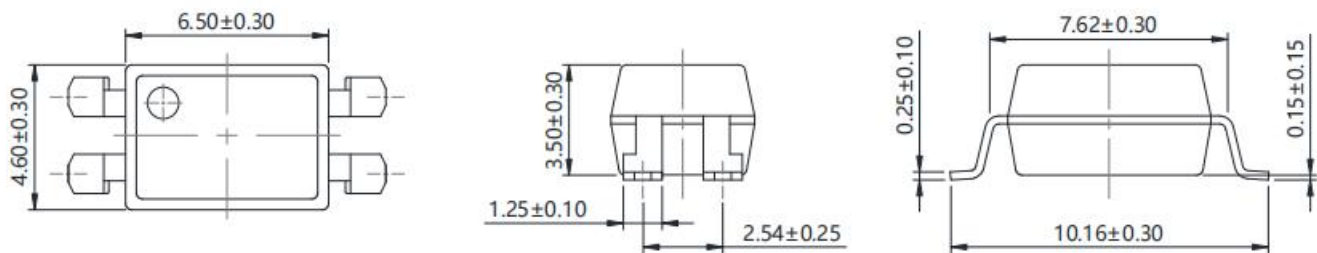


PACKAGE DIMENSIONS

Standard DIP – Through Hole (DIP4)



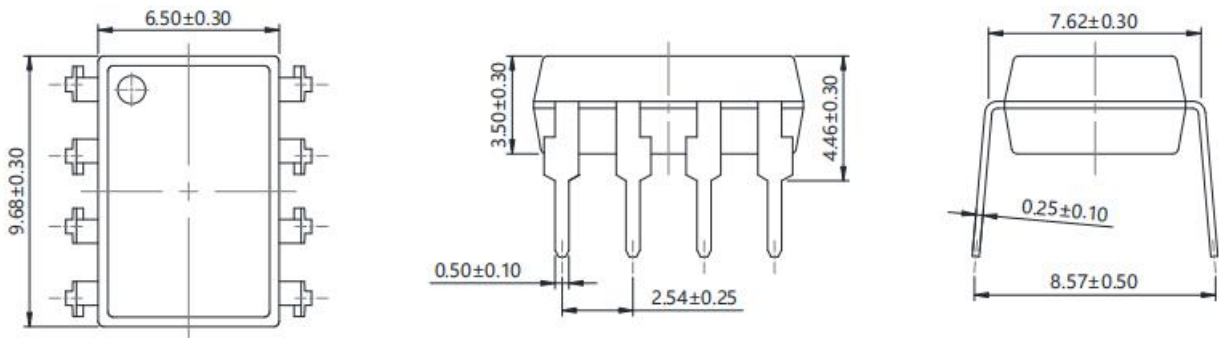
Surface Mount (Low Profile) - (DIP4-SL)



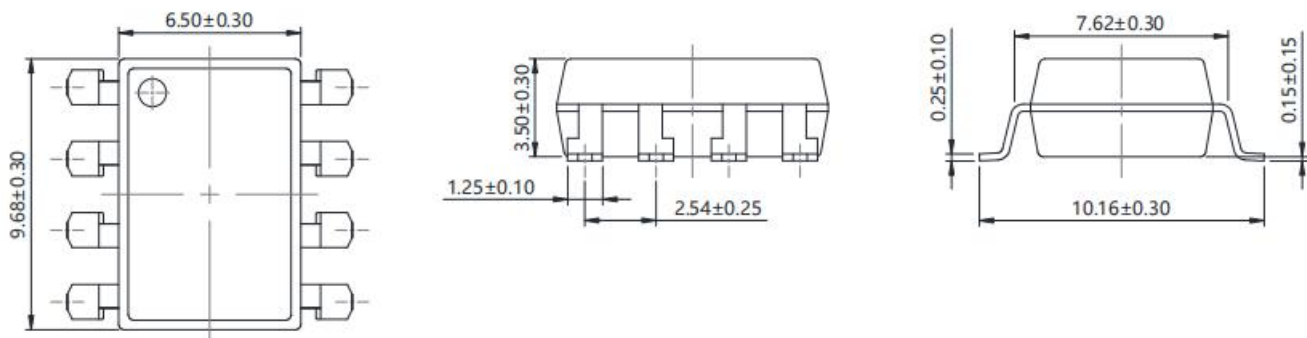
- Dimensions in mm unless otherwise stated

PACKAGE DIMENSIONS

Standard DIP – Through Hole (DIP8)



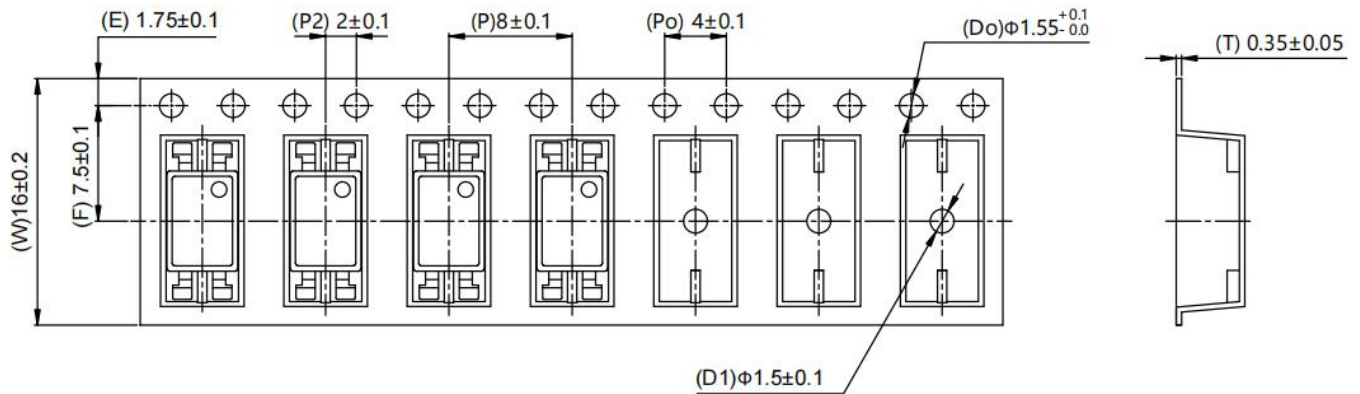
Surface Mount (Low Profile) - (DIP8-SL)



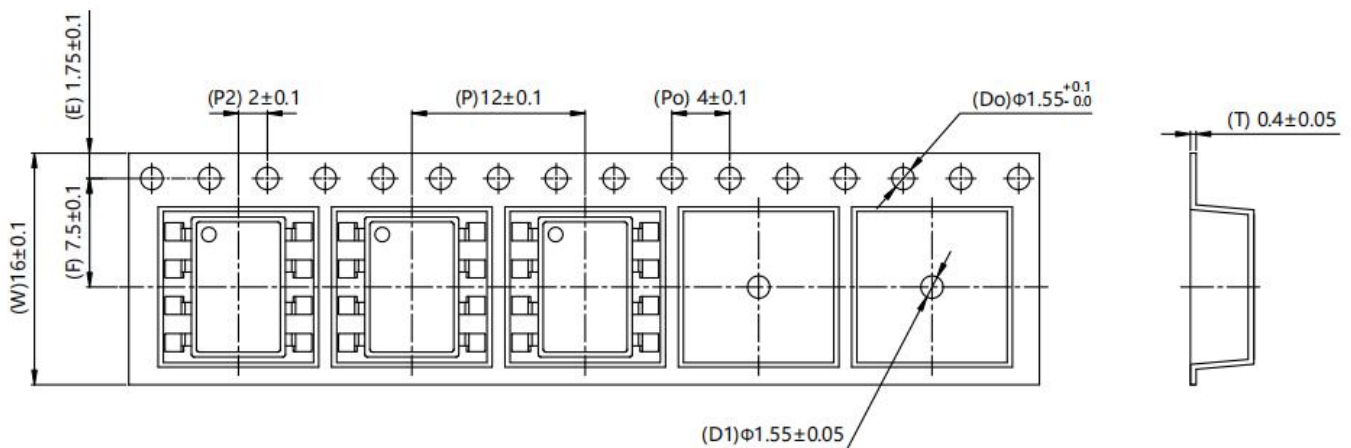
- Dimensions in mm unless otherwise stated

CARRIER TAPE SPECIFICATIONS

Option DIP4-SL

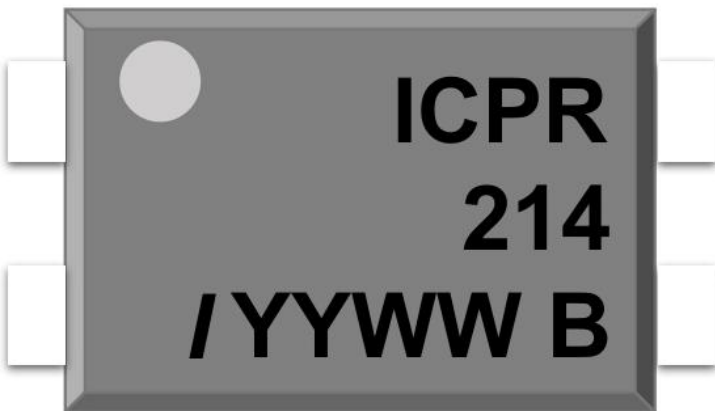


Option DIP8-SL

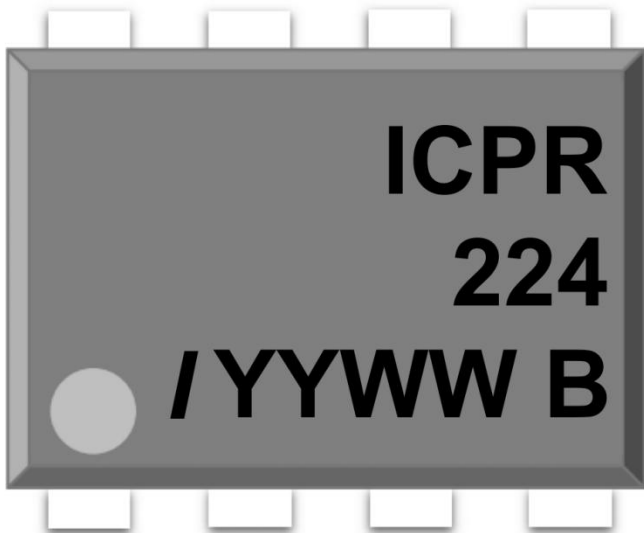


- Dimensions in mm unless otherwise stated

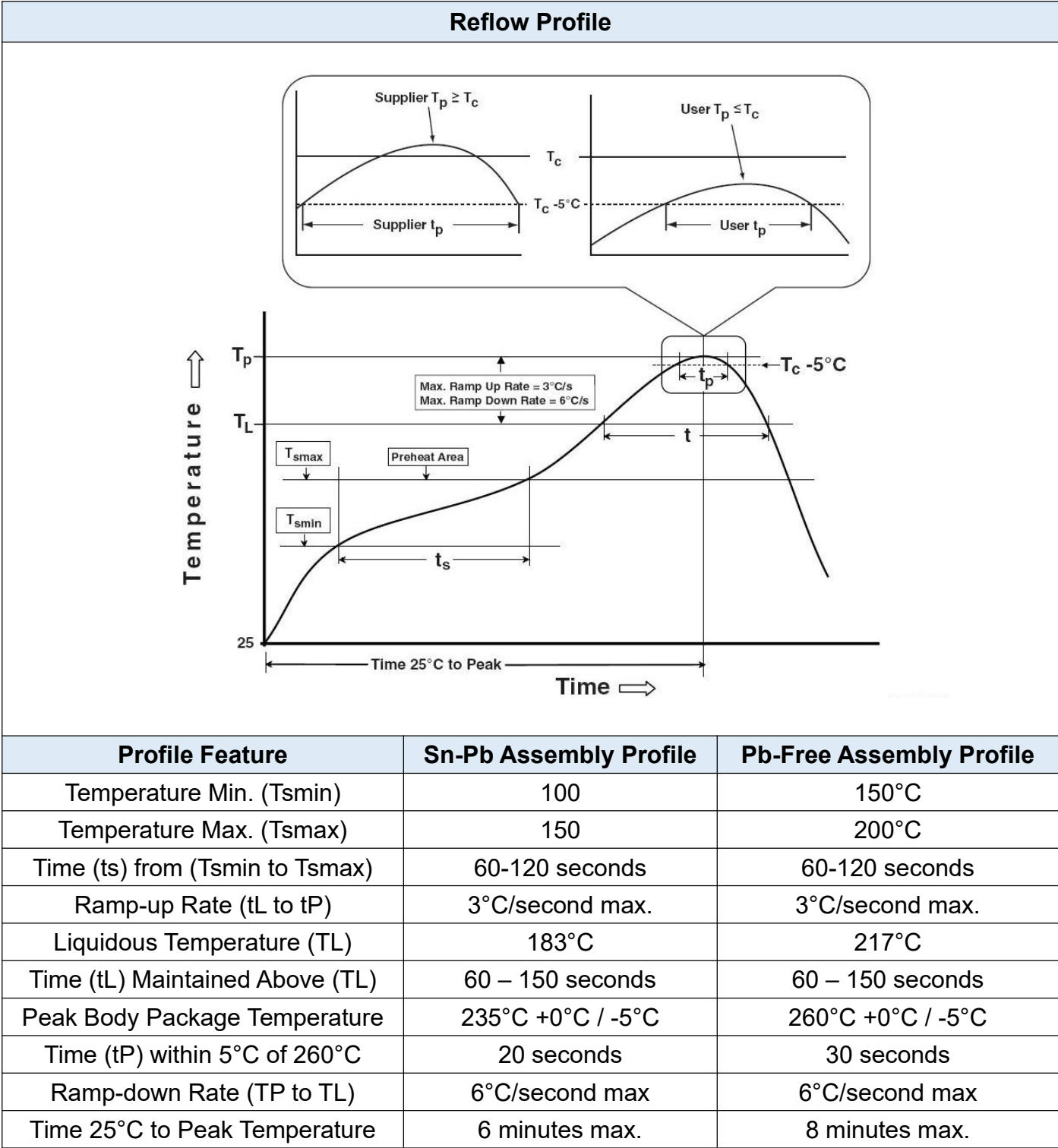
ORDERING AND MARKING INFORMATION

Marking Information			
		ICPR : Company Abbr. 214 : Part Number / : ISOMICRON YY : Fiscal Year WW : Work Week B : Manufacturing Code	
Order Code			
ICPR 2XY - 4 0 0 E Company Abbr. Part Number X=1: Single channel 2: Dual channel Y=0~9,Load Voltage Lead Frame Option 4: Pin4 Halogen Free E: Halogen-free,Lead-free Z: Halogen, Lead-free Performance 0: Normal 1: Enhanced 2: Industrial level 3: Auto level 4: Military level Lead Forming 0: DIP-Standard 5: SM-SL			
Packing Quantity			
Option	Quantity	Quantity – Inner box	Quantity – Outer box
DIP4	100 Units/Tube	50 Tubes/Inner box	10 Inner box/Outer box = 50k Units
DIP4-SL	2000 Units/Reel	2 Reels/Inner box	10 Inner box/Outer box = 40k Units

ORDERING AND MARKING INFORMATION

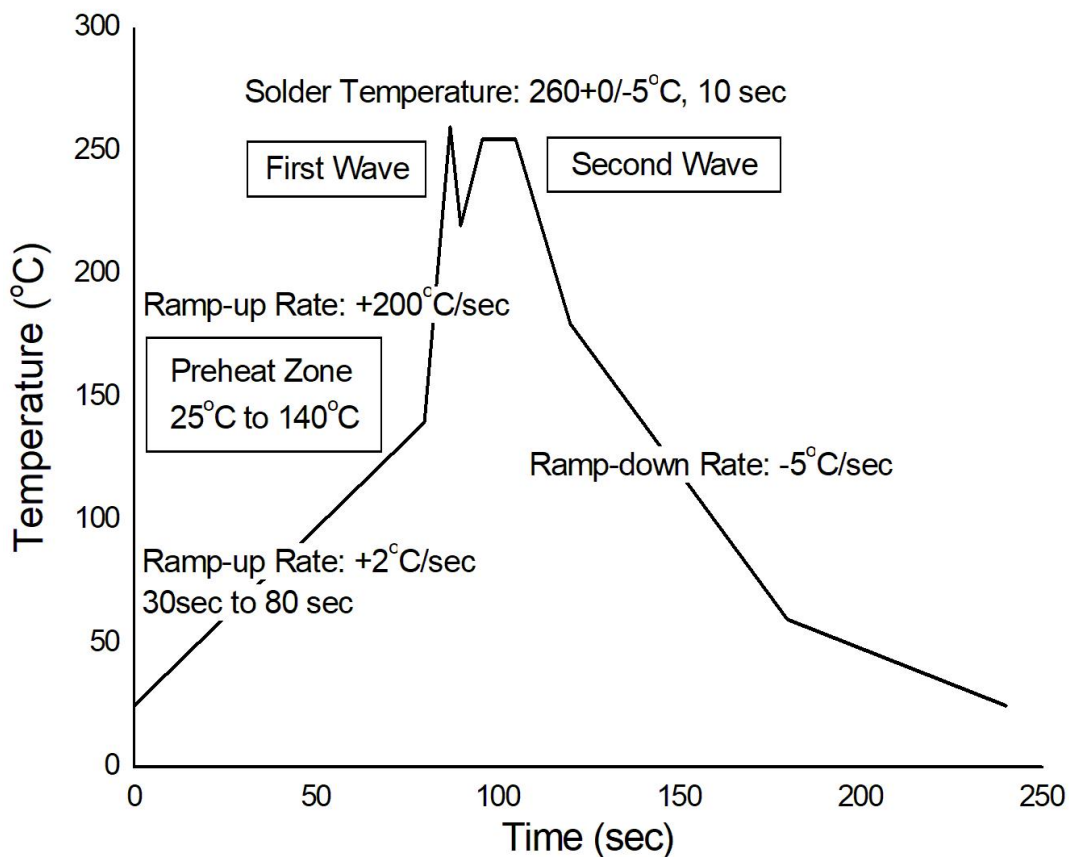
Marking Information			
		ICPR : Company Abbr. 222 : Part Number / : ISOMICRON YY : Fiscal Year WW : Work Week B : Manufacturing Code	
Order Code			
ICPR 2XY - 8 0 0 E Company Abbr. Part Number Lead Frame Option Halogen Free Performance Lead Forming X=1: Single channel 2: Dual channel Y=0~9, Load Voltage E: Halogen-free, Lead-free Z: Halogen, Lead-free 0: Normal 1: Enhanced 2: Industrial level 3: Auto level 4: Military level 0: DIP-Standard 5: SM-SL			
Packing Quantity			
Option	Quantity	Quantity – Inner box	Quantity – Outer box
DIP8	45 Units/Tube	50 Tube/ Inner box	10 Inner box/Outer box=22.5k Units
DIP8-SL	1000 Units/Reel	2 Reels/Inner box	10 Inner box/Outer box = 20k Units

REFLOW INFORMATION



TEMPERATURE PROFILE OF SOLDERING

Wave Soldering (JESD22-A111 Compliant)



Hand Soldering By Soldering Iron

Soldering Temperature	$380 \pm 5^{\circ}\text{C}$
Soldering Time	3 sec max.

- One time soldering is recommended for all soldering method.
- Do not solder more than three times for IR reflow soldering.

DISCLAIMER

- ISOMICRON is continually improving the quality, reliability, function and design. ISOMICRON reserves the right to make changes without further notices.
- The characteristic curves shown in this datasheet are representing typical performance which are not guaranteed.
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- The products shown in this publication are designed for the general use in electronic applications such as office automation, equipment, communications devices, audio/visual equipment, electrical application and instrumentation purpose, non-infringement and merchantability.
- This product is not intended to be used for military, aircraft, automotive, medical, life sustaining or lifesaving applications or any other application which can result in human injury or death.
- Please contact ISOMICRON sales agent for special application request.
- Immerge unit's body in solder paste is not recommended.
- Parameters provided in datasheets may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated in each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify ISOMICRON's terms and conditions of purchase, including but not limited to the warranty expressed therein.
- Discoloration might be occurred on the package surface after soldering, reflow or long-time use. It neither impacts the performance nor reliability.