



# MPCS-330J Series

SOP16, 1.5A Output Smart Gate Driver Optocoupler

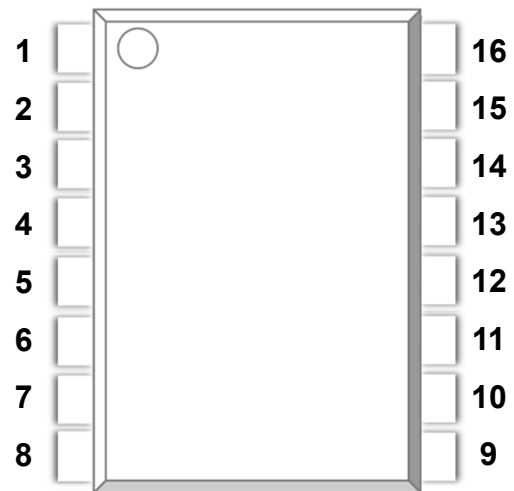
## Description

The MPCS-330J is an advanced 1.5 A output current, easy to-use, intelligent gate driver which makes IGBT  $V_{CE}$  fault protection compact, affordable, and easy-to implement. Features such as integrated  $V_{CE}$  detection, under voltage lockout (UVLO), “soft” IGBT turn-off, isolated open collector fault feedback and active Miller clamping provide maximum design flexibility and circuit protection. The MPCS -330J contains a LED. The LED is optically coupled to an integrated circuit with a power output stage. MPCS -330J is ideally suited for driving power IGBTs and MOSFETs used in motor control inverter applications. The voltage and current supplied by these optocouplers make them ideally suited for directly driving IGBTs with ratings up to 1200 V and 100 A. For IGBTs with higher ratings, the MPCS -330J can be used to drive a discrete power stage which drives the IGBT gate. The MPCS -330J has an insulation voltage of  $V_{IORM} = 1414 V_{PEAK}$ .

## Features

- 1.5 A maximum peak output current
- 1.0 A minimum peak output current
- 250 ns maximum propagation delay over temperature range
- 1.0A Active Miller Clamp. Clamp pin short to  $V_{EE}$  if not in used
- Miller Clamping
- Desaturation Detection
- Under Voltage Lock-Out Protection (UVLO) with Hysteresis
- “Soft” IGBT Turn-off

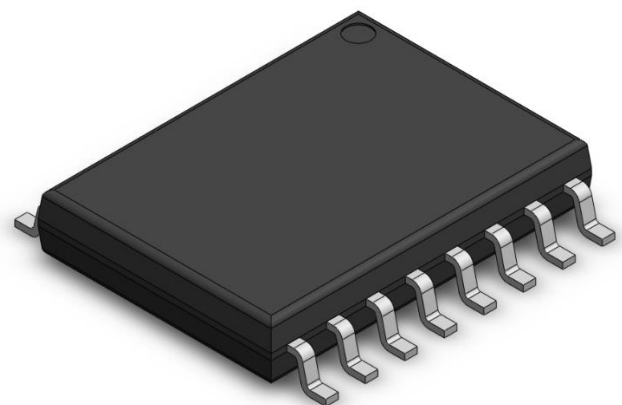
## SCHEMATIC



## PIN DEFINITION

1. $V_S$	16. $V_E$
2. $V_{CC1}$	15. $V_{LED}$
3. FAULT	14. DESAT
4. $V_S$	13. $V_{CC2}$
5. CATHODE	12. $V_{EE}$
6. ANODE	11. $V_{OUT}$
7. ANODE	10. $V_{CLAMP}$
8. CATHODE	9. $V_{EE}$

## PACKAGE OUTLINE





# MPCS-330J Series

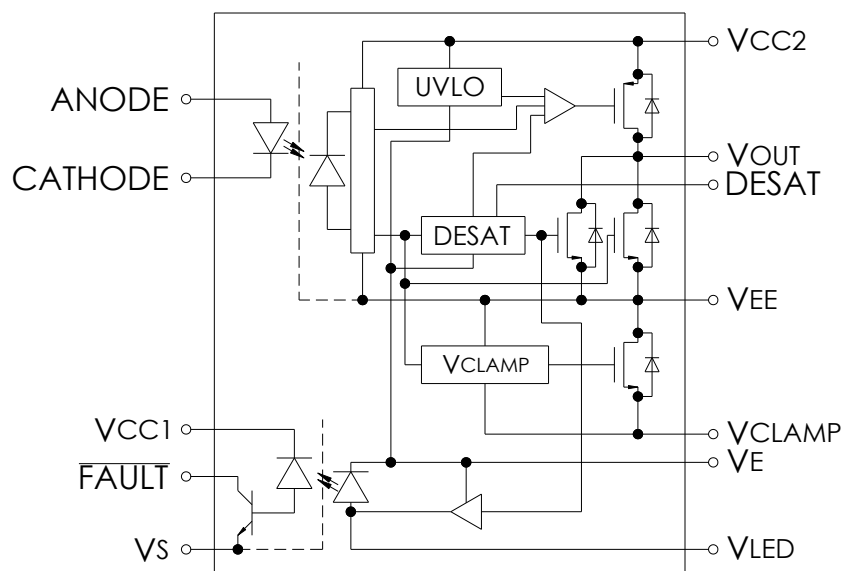
## SOP16, 1.5A Output Smart Gate Driver Optocoupler

- Automatic Fault Reset after fixed Mute Time , typically 26us
- Available in SO-16 package
- 100 ns maximum pulse width distortion (PWD)
- 50 kV/ $\mu$ s minimum common mode rejection (CMR) at  $V_{CM} = 1500$  V
- $I_{CC(max)} < 5$  mA maximum supply current
- Wide  $V_{CC}$  operating range: 15 V to 30 V over temperature range
- Wide operating temperature range:  $-40^{\circ}\text{C}$  to  $110^{\circ}\text{C}$
- Regulatory Approvals
  - UL - UL1577
  - VDE - EN60747-5-5(VDE0884-5)
  - CQC – GB4943.1, GB8898

### Applications

- Isolated IGBT/Power MOSFET gate drive
- AC and brushless DC motor drives
- Industrial inverters and Uninterruptible Power Supply(UPS)

### Internal Circuit





# MPCS-330J Series

## SOP16, 1.5A Output Smart Gate Driver Optocoupler

### ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	MIN.	MAX.	UNIT	NOTE
Storage Temperature	$T_{stg}$	-55	125	°C	
Operating Temperature	$T_A$	-40	110	°C	2
Output IC Junction Temperature	$T_J$	-	125	°C	2
Average Forward Input Current	$I_F$	-	20	mA	1
Peak Transient Input Current ( $<1 \mu s$ pulse width, 300pps)	$I_{F(TRAN)}$	-	1.0	A	
Reverse Input Voltage	$V_R$	-	5	V	
“High” Peak Output Current	$I_{OH(PEAK)}$	-	1.5	A	3
“Low” Peak Output Current	$I_{OL(PEAK)}$	-	1.5	A	3
Positive Input Supply Voltage	$V_{CC1}$	-0.5	7.0	V	
FAULT Output Current	$I_{FAULT}$	-	8.0	mA	
FAULT Pin Voltage	$V_{FAULT}$	-0.5	$V_{CC1}$	V	
Total Output Supply Volta	$(V_{CC2} - V_{EE})$	-0.5	35	V	
Negative Output Supply Voltage	$(V_E - V_{EE})$	-0.5	15	V	6
Positive Output Supply Voltage	$(V_{CC2} - V_E)$	-0.5	$35 - (V_E - V_{EE})$	V	
Gate Drive Output Voltage	$V_{O(PEAK)}$	-0.5	$V_{CC2}$	V	
Peak Clamping Sinking Current	$I_{Clamp}$	-	1.0	A	
Miller Clamping Pin Voltage	$V_{Clamp}$	-0.5	$V_{CC2}$	V	
DESAT Voltage	$V_{DESAT}$	$V_E$	$V_E + 10$	V	
Output IC Power Dissipation	$P_O$	-	600	mW	2
Input IC Power Dissipation	$P_I$	-	150	mW	2
Solder Reflow Temperature Profile	See Package Outline Drawings section				

### RECOMMENDED OPERATION CONDITIONS

PARAMETER	SYMBOL	MIN.	MAX.	UNIT	Note
Operating Temperature	$T_A$	-40	110	°C	2
Total Output Supply Voltage	$(V_{CC2} - V_{EE})$	15	30	V	7
Negative Output Supply Voltage	$(V_E - V_{EE})$	0	15	V	4
Positive Output Supply Voltage	$(V_{CC2} - V_E)$	15	$30 - (V_E - V_{EE})$	V	
Input Current (ON)	$I_{F(ON)}$	8	12	mA	
Input Voltage (OFF)	$V_{F(OFF)}$	-3.6	0.8	V	



# MPCS-330J Series

## SOP16, 1.5A Output Smart Gate Driver Optocoupler

### ELECTRICAL OPTICAL CHARACTERISTICS

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION	NOTE
INPUT CHARACTERISTICS							
FAULT Logic Low Output Voltage	$V_{FAULTL}$	-	0.01	0.4	V	$I_{FAULT} = 1.1 \text{ mA}, V_{CC1} = 5.5\text{V}$	
		-	0.02	0.4	V	$I_{FAULT} = 1.1 \text{ mA}, V_{CC1} = 3.3\text{V}$	
FAULT Logic High Output Current	$I_{FAULTH}$	-	0.01	0.5	$\mu\text{A}$	$V_{FAULT} = 5.5 \text{ V}, V_{CC1} = 5.5\text{V}$	
		-	0.006	0.3	$\mu\text{A}$	$V_{FAULT} = 3.3 \text{ V}, V_{CC1} = 3.3\text{V}$	
High Level Output Current	$I_{OH}$	-	-1.0	-0.3	A	$V_O = V_{CC2} - 4$	5
		-	-	-1.0	A	$V_O = V_{CC2} - 15$	3
Low Level Output Current	$I_{OL}$	0.3	1.0	-	A	$V_O = V_{EE} + 2.5$	5
		1.0	-	-	A	$V_O = V_{EE} + 15$	3
Low Level Output Current During Fault Condition	$I_{OLF}$	70	110	230	mA	$V_{OUT} - V_{EE} = 14 \text{ V}$	6
High Level Output Voltage	$V_{OH}$	$V_{CC}-0.5$	$V_{CC}-0.1$	-	V	$I_O = -650 \mu\text{A}$	7,8,9,23
Low Level Output Voltage	$V_{OL}$	-	0.13	0.5	V	$I_O = 100 \text{ mA}$	
Clamp Pin Threshold Voltage	$V_{tClamp}$	-	2.2	-	V	-	
Clamp Low Level Sinking Current	$I_{CL}$	0.21	0.8	-	A	$V_O = V_{EE} + 2.5$	
High Level Supply Current	$I_{CC2H}$	-	2.16	5	mA	$I_O = 0 \text{ mA}$	9
Low Level Supply Current	$I_{CC2L}$	-	2.29	5	mA	$I_O = 0 \text{ mA}$	
Blanking Capacitor Charging Current	$I_{CHG}$	0.13	-0.23	-0.33	mA	$V_{DESAT} = 2 \text{ V}$	9,10
Blanking Capacitor Discharge Current	$I_{DSCHG}$	10	31	-	mA	$V_{DESAT} = 7.0 \text{ V}$	
DESAT Threshold	$V_{DESAT}$	6	6.7	7.5	V	$V_{CC2} - V_E > V_{UVLO-}$	9
UVLO Threshold	$V_{UVLO+}$	10.5	11.5	12.5	V	$V_O > 5 \text{ V}$	7,9,11
	$V_{UVLO-}$	9.2	10.5	11.1	V	$V_O < 5 \text{ V}$	7,9,12
UVLO Hysteresis	$(V_{UVLO+} - V_{UVLO-})$	0.4	1.0	-	V	-	
Threshold Input Current Low to High	$I_{FLH}$	-	0.33	5	mA	$I_O = 0 \text{ mA}, V_O > 5 \text{ V}$	
Threshold Input Voltage High to Low	$V_{FHL}$	0.8	1.75	-	V	-	
Input Forward Voltage	$V_F$	1.6	2.0	2.4	V	$I_F = 10 \text{ mA}$	
Input Reverse Breakdown Voltage	$BV_R$	5	-	-	V	$I_R = 10 \mu\text{A}$	
Input Capacitance	$C_{IN}$	-	70	-	pF	$f = 1 \text{ MHz}, V_F = 0 \text{ V}$	

Unless otherwise noted, all typical values at  $T_A = 25^\circ\text{C}$ ,  $V_{CC2} - V_{EE} = 30 \text{ V}$ ,  $V_E - V_{EE} = 0 \text{ V}$ ;

all Minimum/Maximum specifications are at Recommended Operating Conditions.

Rev: 2.0

Release Date: 2024/10/15



# MPCS-330J Series

## SOP16, 1.5A Output Smart Gate Driver Optocoupler

### SWITCHING SPECIFICATION

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION	NOTE
Propagation Delay Time to Output Low Level	$t_{PHL}$	50	104	250	ns	$R_g = 20 \Omega$ , $C_g = 5 \text{ nF}$ , $f = 10 \text{ kHz}$ , Duty Cycle = 50%, $I_F = 10 \text{ mA}$ , $V_{CC2} = 30 \text{ V}$	
Propagation Delay Time to Output High Level	$t_{PLH}$	50	77	250	ns		13,15
Pulse Width Distortion	PWD	-100		100	ns		14,17
Propagation Delay Difference Between Any Two Parts	PDD ( $t_{PHL} - t_{PLH}$ )	-150	-	150	ns		17,16
Rise Time	$t_r$	-	50	-	ns		
Fall Time	$t_f$	-	45	-	ns		
DESAT Sense to 90% VO Delay	$t_{DESAT(90\%)}$	-	0.1	0.3	$\mu\text{s}$	$C_{DESAT} = 100\text{pF}$ , $R_F = 2.1\text{k}\Omega$ , $R_g = 20 \Omega$ , $C_g = 5 \text{ nF}$ , $V_{CC2} = 30 \text{ V}$	19
DESAT Sense to 10% VO Delay	$t_{DESAT(10\%)}$	-	1.1	1.5	$\mu\text{s}$	$C_{DESAT} = 100\text{pF}$ , $R_F = 2.1\text{k}\Omega$ , $R_g = 20 \Omega$ , $C_g = 5 \text{ nF}$ , $V_{CC2} = 30 \text{ V}$	
DESAT Sense to Low Level FAULT Signal Delay	$t_{DESAT(FAULT)}$	-	0.2	0.5	$\mu\text{s}$	$C_{DESAT} = 100 \text{ pF}$ , $R_F = 2.1\text{k}\Omega$ , $C_F = \text{Open}$ , $R_g = 20 \Omega$ , $C_g = 5 \text{ nF}$ , $V_{CC2} = 30 \text{ V}$	18
		-	0.8	-	$\mu\text{s}$	$C_{DESAT} = 100 \text{ pF}$ , $R_F = 2.1\text{k}\Omega$ , $C_F = 1 \text{ nF}$ , $R_g = 20 \Omega$ , $C_g = 5 \text{ nF}$ , $V_{CC2} = 30 \text{ V}$	
DESAT Sense to DESAT Low Propagation Delay	$t_{DESAT(LOW)}$	-	0.15	-	$\mu\text{s}$	$C_{DESAT} = 100\text{pF}$ , $R_F = 2.1\text{k}\Omega$ , $R_g = 20 \Omega$ , $C_g = 5 \text{ nF}$ , $V_{CC2} = 30 \text{ V}$	19
DESAT Input Mute	$t_{DESAT(MUTE)}$	15	26	40	$\mu\text{s}$	$C_{DESAT} = 100\text{pF}$ , $R_F = 2.1\text{k}\Omega$ , $R_g = 20 \Omega$ , $C_g = 5 \text{ nF}$ , $V_{CC1} = 5.5\text{V}$ , $V_{CC2} = 30 \text{ V}$	20
Output High Level Common Mode Transient Immunity	CMH	15	-	-	kV/ $\mu\text{s}$	$T_A = 25^\circ\text{C}$ , $I_F = 10\text{mA}$ , $V_{CM} = 1500 \text{ V}$ , $V_{CC2} = 30\text{V}$ , $R_F = 2.1\text{k}\Omega$ , $C_F = 15 \text{ pF}$	21
		50	-	-		$T_A = 25^\circ\text{C}$ , $I_F = 10\text{mA}$ , $V_{CM} = 1500 \text{ V}$ , $V_{CC2} = 30\text{V}$ , $R_F = 2.1\text{k}\Omega$ , $C_F = 1\text{nF}$	21,26
Output Low Level Common Mode Transient Immunity	CML	15	-	-	kV/ $\mu\text{s}$	$T_A = 25^\circ\text{C}$ , $V_F = 0\text{V}$ , $V_{CM} = 1500\text{V}$ , $V_{CC2} = 30\text{V}$ , $R_F = 2.1\text{k}\Omega$ , $C_F = 15 \text{ pF}$	22
		50	-	-		$T_A = 25^\circ\text{C}$ , $V_F = 0\text{V}$ , $V_{CM} = 1500\text{V}$ , $V_{CC2} = 30\text{V}$ , $R_F = 2.1\text{k}\Omega$ , $C_F = 1\text{nF}$	

Unless otherwise noted, all typical values at  $T_A = 25^\circ\text{C}$ ,  $V_{CC2} - V_{EE} = 30 \text{ V}$ ,  $V_E - V_{EE} = 0 \text{ V}$ ; all Minimum/Maximum specifications are at Recommended Operating Conditions.



# MPCS-330J Series

## SOP16, 1.5A Output Smart Gate Driver Optocoupler

### ISOLATION CHARACTERISTIC

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION	NOTE
Withstand Insulation Test Voltage	$V_{ISO}$	5000	-	-	V	RH $\leq$ 40%-60%, t = 1min, T <sub>A</sub> = 25 °C	24,25
Input-Output Resistance	$R_{I-O}$	-	10 <sup>12</sup>	-	$\Omega$	$V_{I-O} = 500V$ DC	25

Note1: Derate linearly above 70°C free air temperature at a rate of 0.3 mA/°C.

Note2: In order to achieve the absolute maximum power dissipation specified, pins 4, 9, and 10 require ground plane connections and may require airflow. See the Thermal Model section in the application notes at the end of this data sheet for details on how to estimate junction temperature and power dissipation. In most cases the absolute maximum output IC junction temperature is the limiting factor. The actual power dissipation achievable will depend on the application environment (PCB Layout, air flow, part placement, etc.). See the Recommended PCB Layout section in the application notes for layout considerations. Output IC power dissipation is derated linearly at 10 mW/°C above 90°C. Input IC power dissipation does not require derating.

Note3: Maximum pulse width = 10  $\mu$ s. This value is intended to allow for component tolerances for designs with IO peak minimum = 1.0 A. Derate linearly from 2.0 A at +25°C to 1.5 A at +105°C. This compensates for increased  $I_{OPEAK}$  due to changes in  $V_{OL}$  over temperature.

Note4: This supply is optional. Required only when negative gate drive is implemented.

Note5: Maximum pulse width = 50  $\mu$ s.

Note6: See the Slow IGBT Gate Discharge During Fault Condition section in the applications notes at the end of this data sheet for further details.

Note7: 15 V is the recommended minimum operating positive supply voltage ( $V_{CC2} - V_E$ ) to ensure adequate margin in excess of the maximum  $V_{UVLO+}$  threshold of 12.5 V. For High Level Output Voltage testing,  $V_{OH}$  is measured with a dc load current. When driving capacitive loads,  $V_{OH}$  will approach  $V_{CC}$  as  $I_{OH}$  approaches zero units.

Note8: Maximum pulse width = 1.0 ms.

Note9: Once  $V_O$  of the MPCS-330J is allowed to go high ( $V_{CC2} - V_E > V_{UVLO+}$ ), the DESAT detection feature of the MPCS-330J will be the primary source of IGBT protection.  $U_{VLO}$  is needed to ensure DESAT is functional. Once  $V_{CC2}$  is increased from 0V to above  $V_{UVLO+}$ , DESAT will remain functional until  $V_{CC2}$  is decreased below  $V_{UVLO-}$ . Thus, the DESAT detection and  $U_{VLO}$  features of the MPCS-330J work in conjunction to ensure constant IGBT protection.

Note10: See the DESAT fault detection blanking time section in the applications notes at the end of this data sheet for further details.

Note11: This is the "increasing" (i.e. turn-on or "positive going" direction) of  $V_{CC2} - V_E$

Note12: This is the "decreasing" (i.e. turn-off or "negative going" direction) of  $V_{CC2} - V_E$



# MPCS-330J Series

## SOP16, 1.5A Output Smart Gate Driver Optocoupler

Note13: This load condition approximates the gate load of a 1200 V/75A IGBT.

Note14: Pulse Width Distortion (PWD) is defined as  $|t_{PHL} - t_{PLH}|$  for any given unit.

Note15: As measured from  $I_F$  to  $V_O$ .

Note16: The difference between  $t_{PHL}$  and  $t_{PLH}$  between any two MPCS-330J parts under the same test conditions.

Note17: As measured from ANODE, CATHODE of LED to  $V_{OUT}$ .

Note18: This is the amount of time from when the DESAT threshold is exceeded, until the FAULT output goes low.

Note19: This is the amount of time the DESAT threshold must be exceeded before  $V_{OUT}$  begins to go low, and the FAULT output to go low. This is supply voltage dependent.

Note20: Auto Reset: This is the amount of time when  $V_{OUT}$  will be asserted low after DESAT threshold is exceeded. See the Description of Operation (Auto Reset) topic in the application information section.

Note21: Common mode transient immunity in the high state is the maximum tolerable  $dV_{CM}/dt$  of the common mode pulse,  $V_{CM}$ , to assure that the output will remain in the high state (i.e.,  $V_O > 15\text{ V}$  or FAULT  $> 2\text{ V}$ ).

Note22: Common mode transient immunity in the low state is the maximum tolerable  $dV_{CM}/dt$  of the common mode pulse,  $V_{CM}$ , to assure that the output will remain in a low state (i.e.,  $V_O < 1.0\text{ V}$  or FAULT  $< 0.8\text{ V}$ ).

Note23: To clamp the output voltage at  $V_{CC} - 3V_{BE}$ , a pull-down resistor between the output and VEE is recommended to sink a static current of 650  $\mu\text{A}$  while the output is high. See the Output Pull-Down Resistor section in the application notes at the end of this data sheet if an output pull-down resistor is not used.

Note24: In accordance with UL 1577, each optocoupler is proof tested by applying an insulation test voltage  $\geq 6000\text{ V}_{rms}$  for 1 second. This test is performed before the 100% production test for partial discharge (method b) shown in IEC/EN/DIN EN 60747-5-5 Insulation Characteristic Table.

Note25: This is a two-terminal measurement: pins 1-8 are shorted together and pins 9-16 are shorted together.

Note26: Split resistors network with a ratio of 1:1 is needed at input LED1.



# MPCS-330J Series

SOP16, 1.5A Output Smart Gate Driver Optocoupler

## TYPICAL PERFORMANCE CURVES & TEST CIRCUITS

Fig.1  $V_{OH}$  vs. Temperature

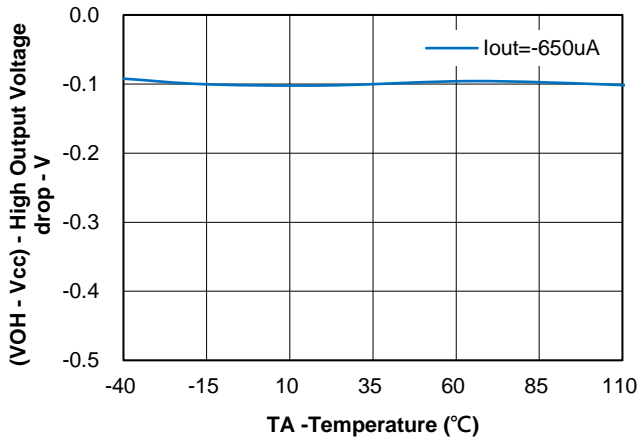


Fig.2  $V_{OL}$  vs. Temperature

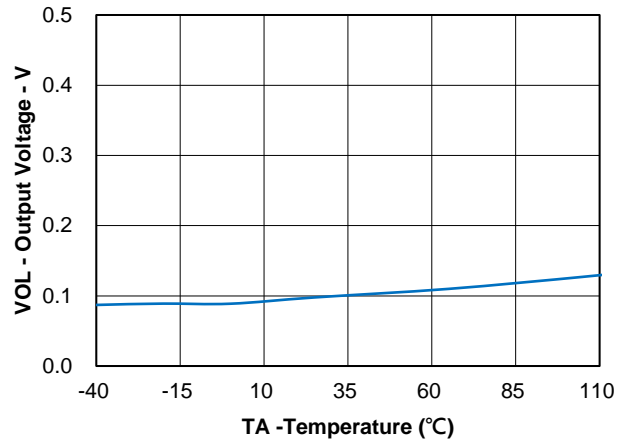


Fig.3  $V_{OH}$  vs.  $I_{OH}$

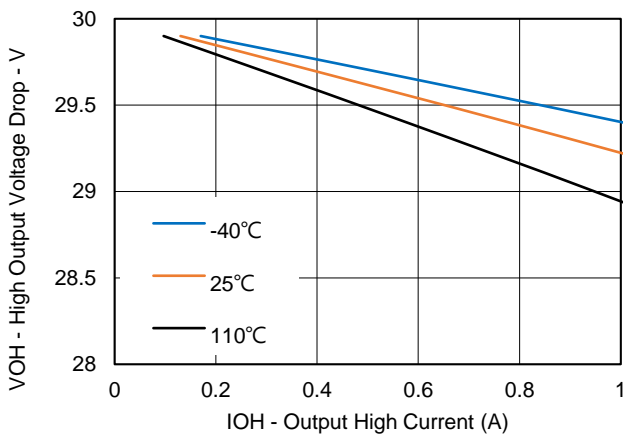


Fig.4  $V_{OL}$  vs.  $I_{OL}$

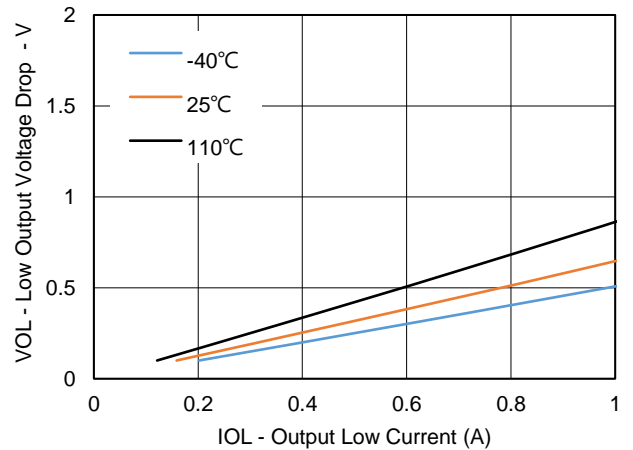


Fig.5  $I_{CL}$  vs. Temperature

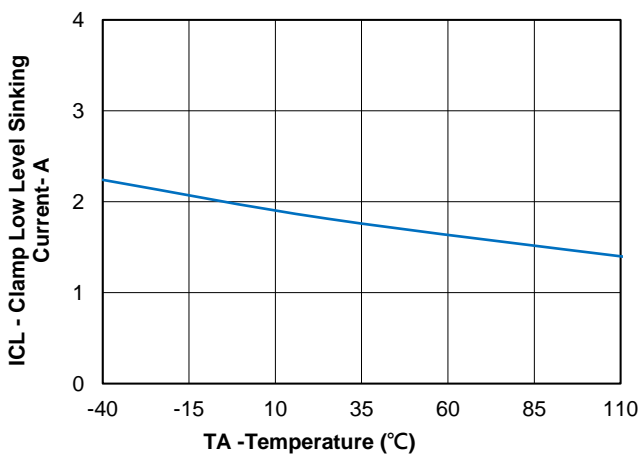
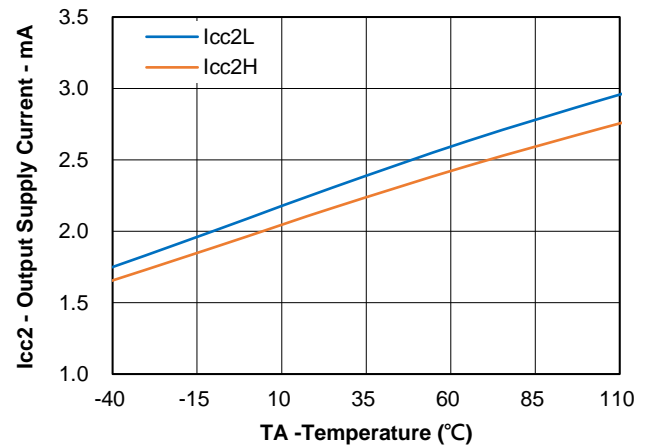


Fig.6  $I_{CC2}$  vs. Temperature







# MPCS-330J Series

## SOP16, 1.5A Output Smart Gate Driver Optocoupler

Fig.7  $I_{CC2}$  vs.  $V_{CC2}$

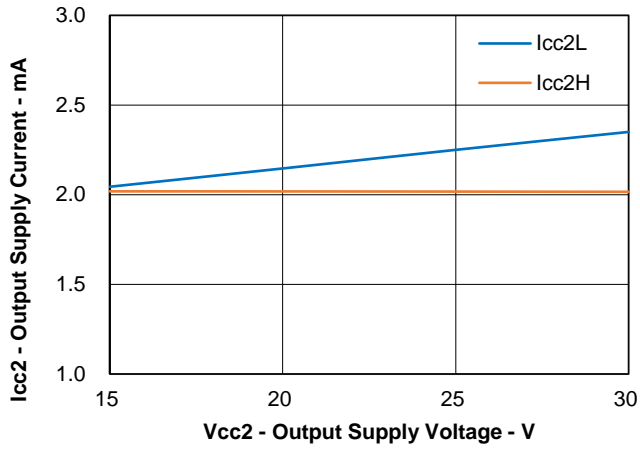


Fig.8  $I_{CHG}$  vs. Temperature

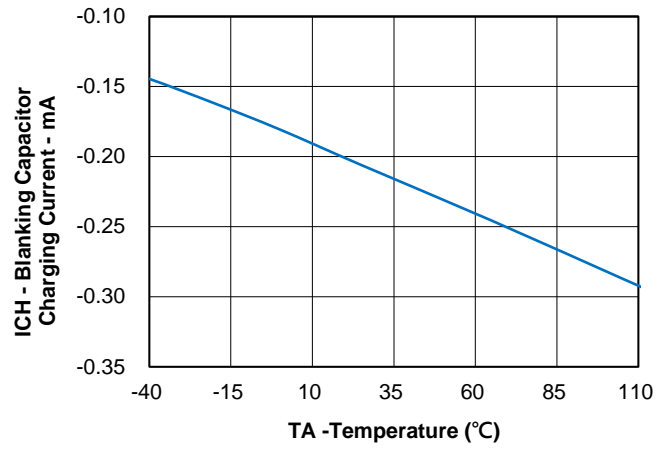


Fig.9 DESAT Threshold vs. Temperature

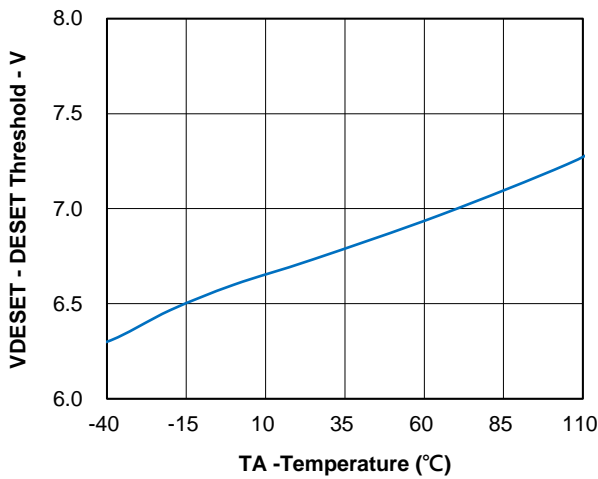


Fig.10 Propagation Delay vs. Temperature

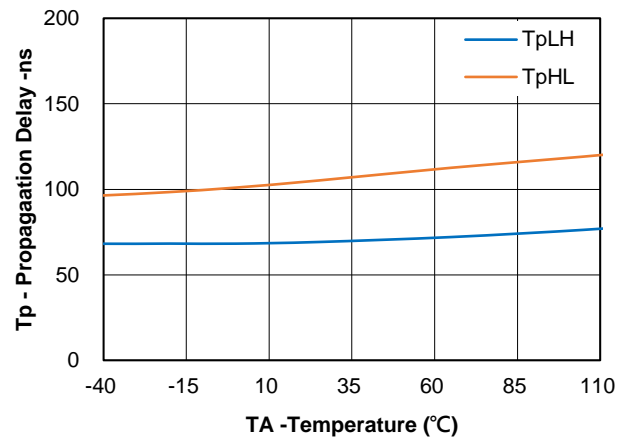


Fig.11 Propagation Delay vs. Supply Voltage

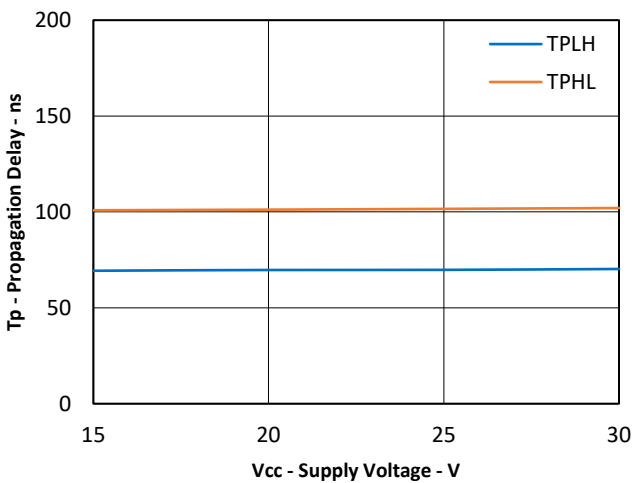
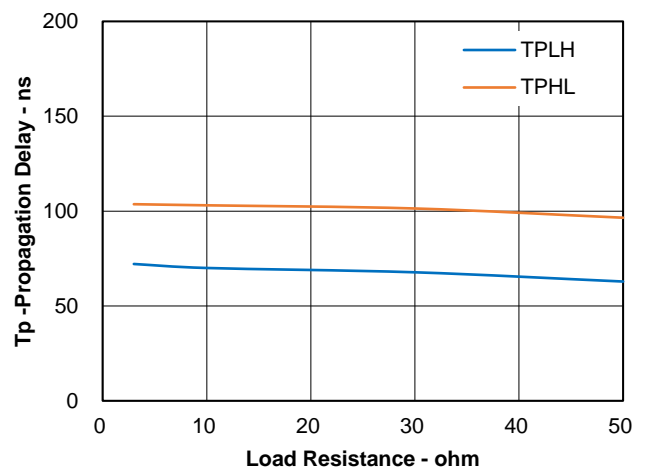


Fig.12 Propagation Delay vs.  $R_L$

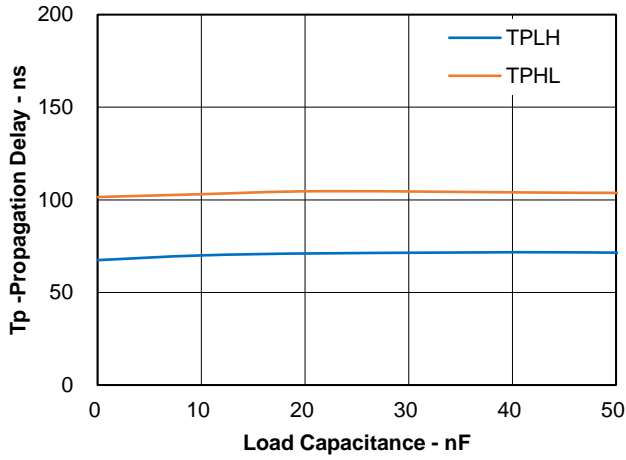




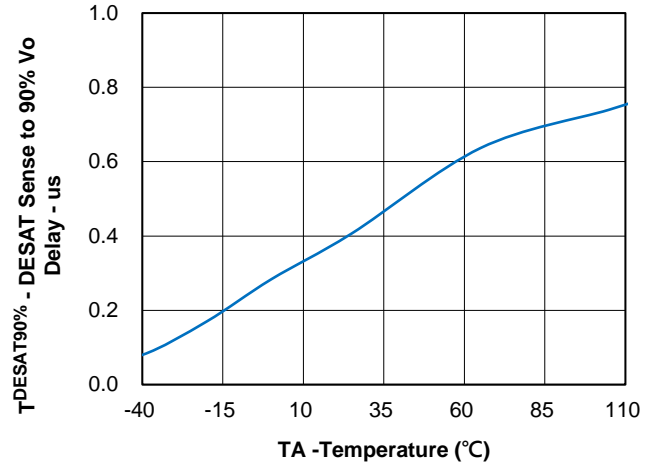
# MPCS-330J Series

## SOP16, 1.5A Output Smart Gate Driver Optocoupler

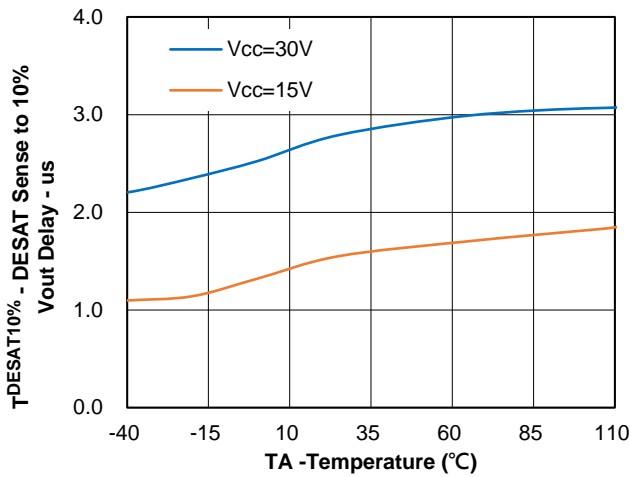
**Fig.13 Propagation Delay vs.  $C_L$**



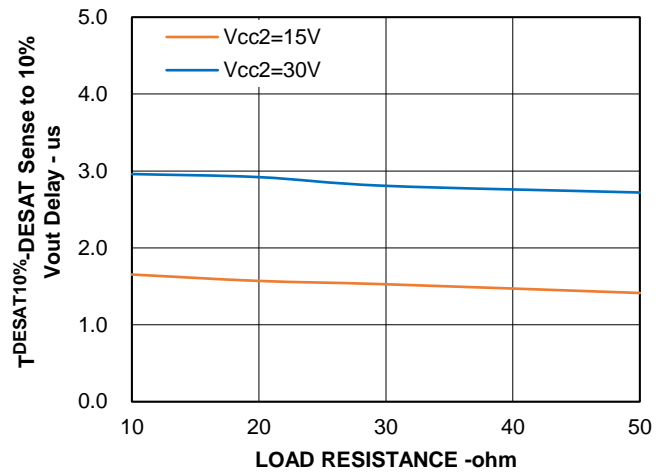
**Fig.14  $T_{DESAT90\%}$  vs. Temperature**



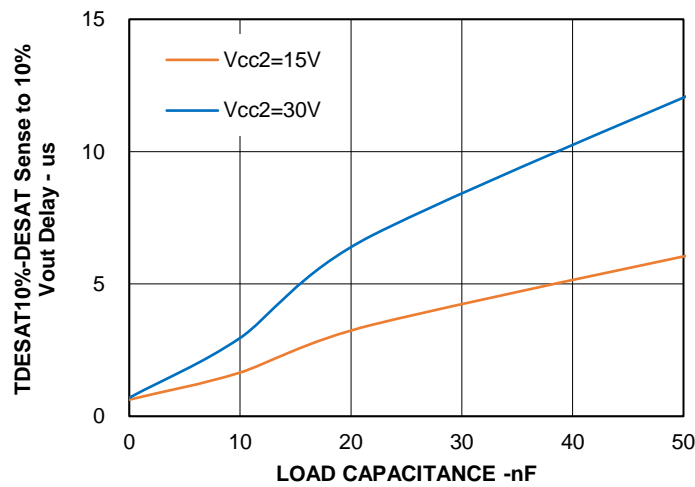
**Fig.15  $T_{DESAT10\%}$  vs. Temperature**



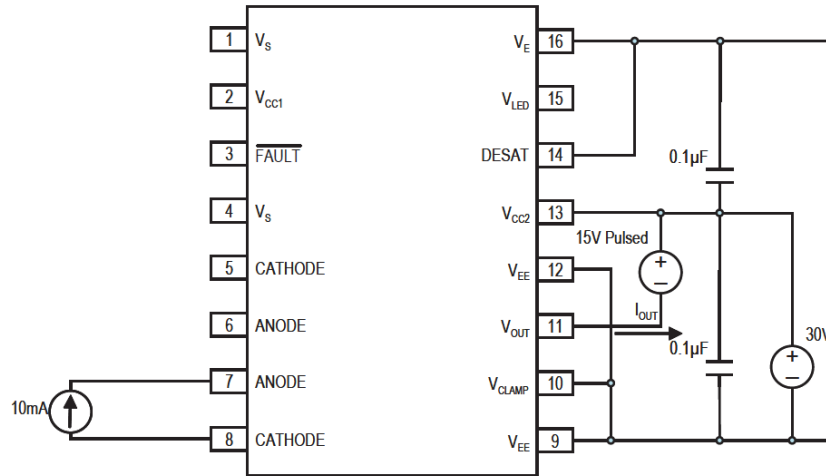
**Fig.16  $T_{DESAT10\%}$  vs.  $R_L$**



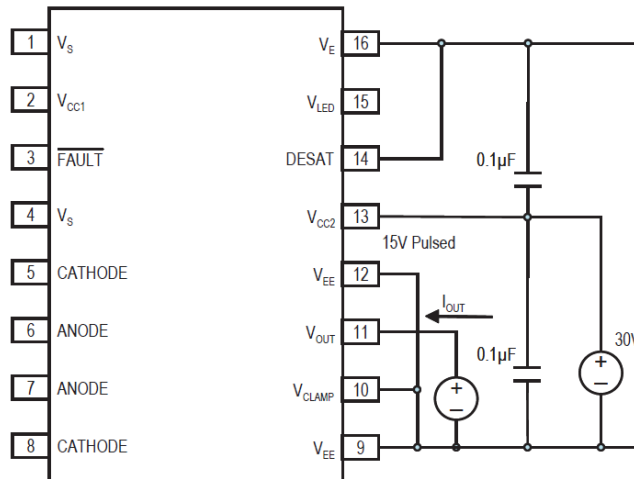
**Fig.17  $T_{DESAT10\%}$  vs.  $C_L$**



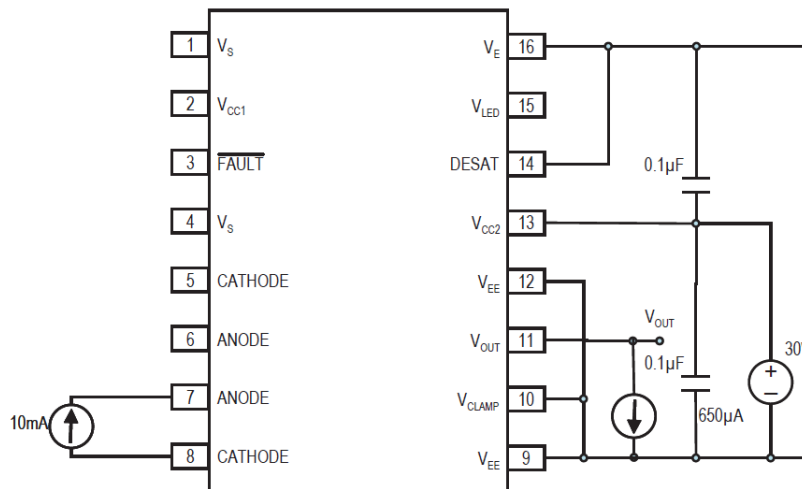
**Fig.18 I<sub>OH</sub> Pulsed Test Circuit**



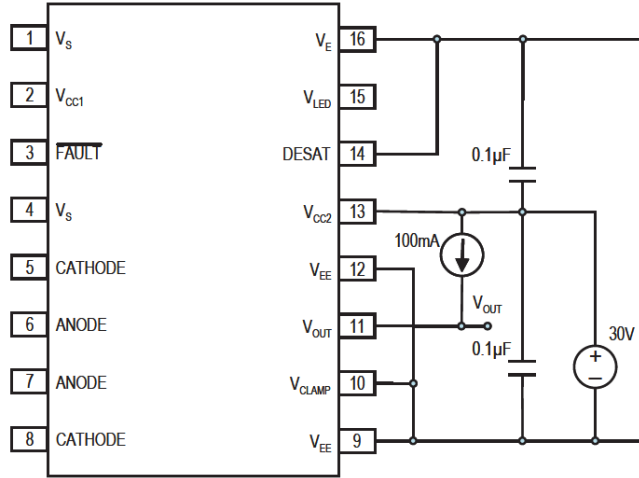
**Fig.19 I<sub>OL</sub> Pulsed Test Circuit**



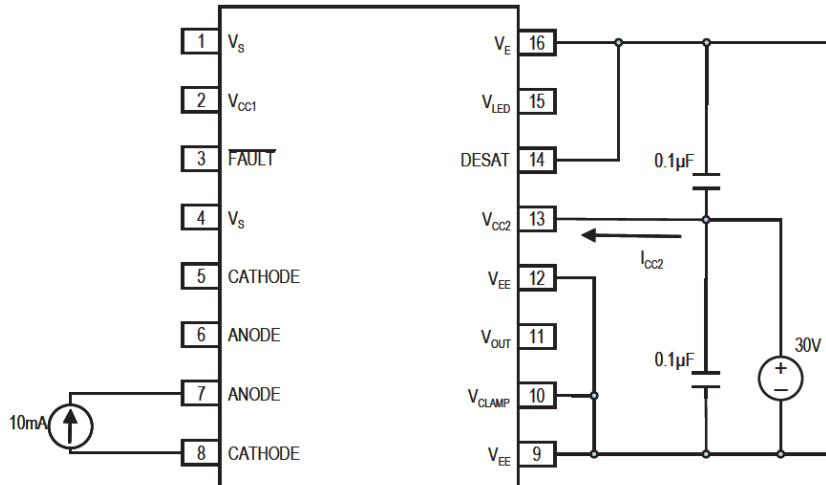
**Fig.20 V<sub>OH</sub> Pulsed Test Circuit**



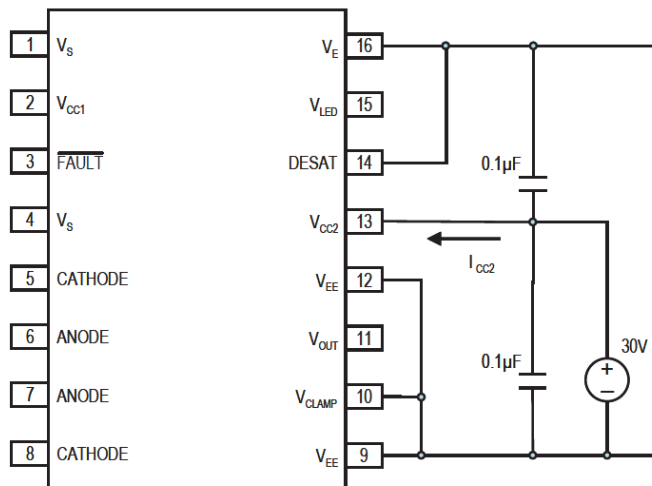
**Fig.21  $V_{OL}$  Pulsed Test Circuit**



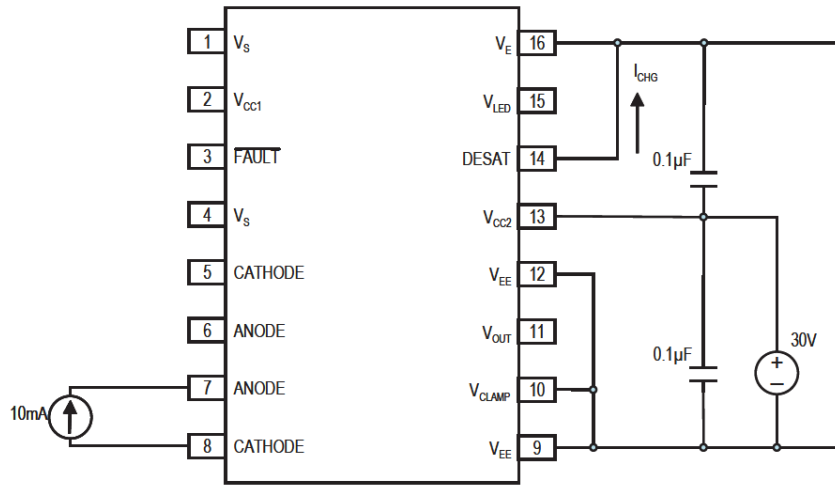
**Fig.22  $I_{CC2H}$  Test Circuit**



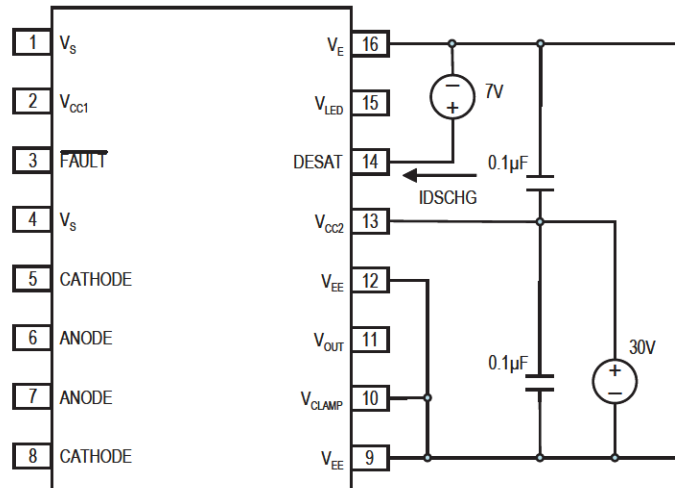
**Fig.23  $I_{CC2L}$  Test Circuit**



**Fig.24 I<sub>CHG</sub> Pulsed Test Circuit**



**Fig.25 I<sub>DSCHG</sub> Test Circuit**



**Fig.26 t<sub>PLH</sub>, t<sub>PHL</sub>, t<sub>r</sub>, t<sub>f</sub> Test Circuit**

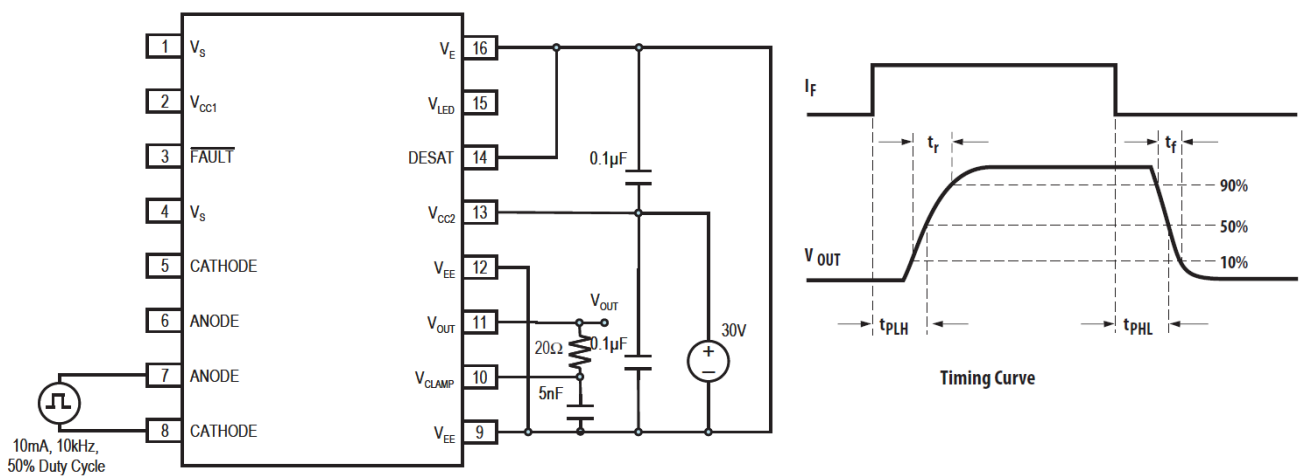
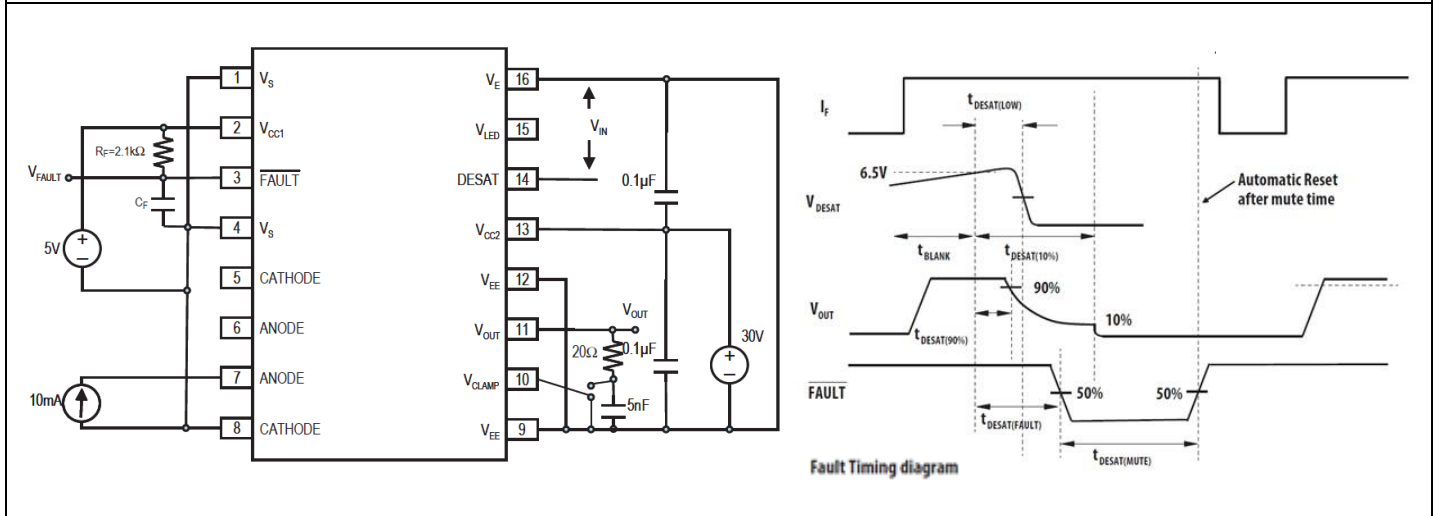


Fig.27  $t_{DESAT}$  Fault Test Circuit

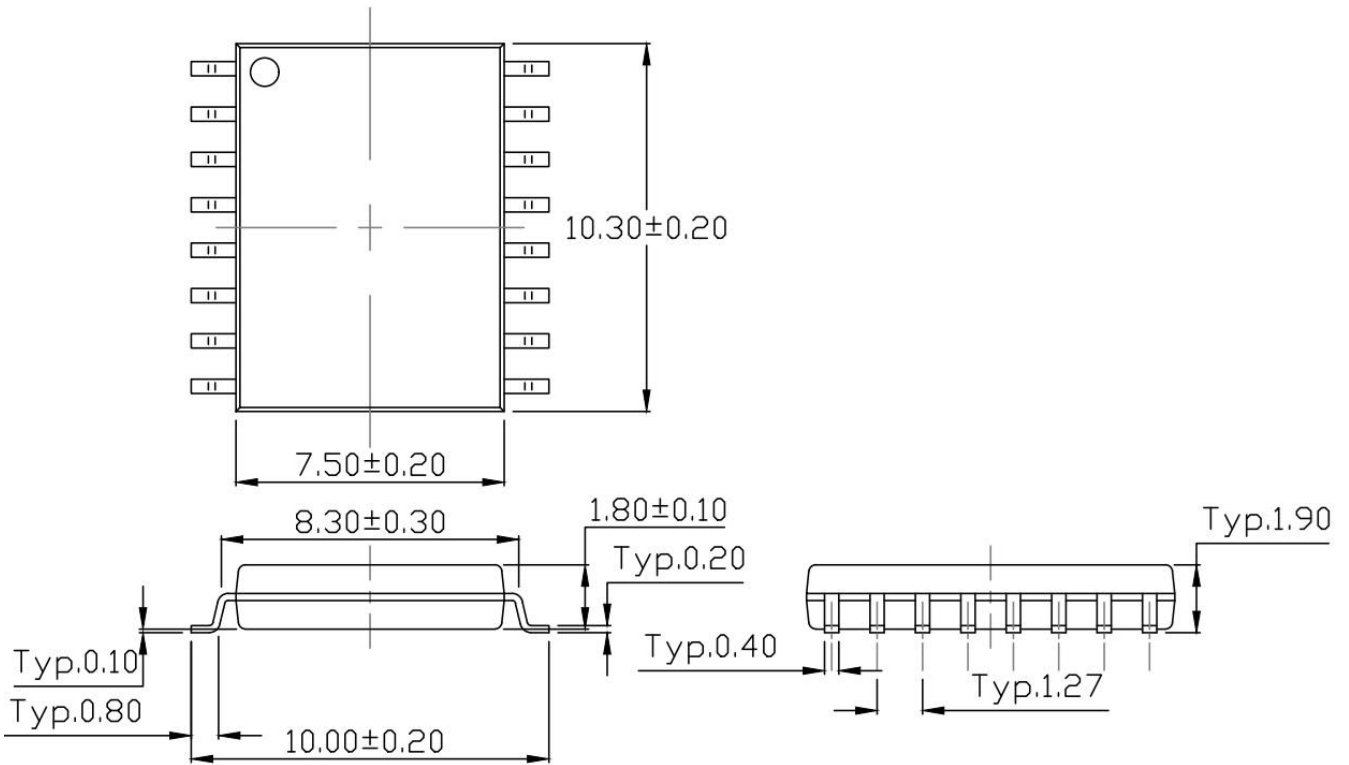




# MPCS-330J Series

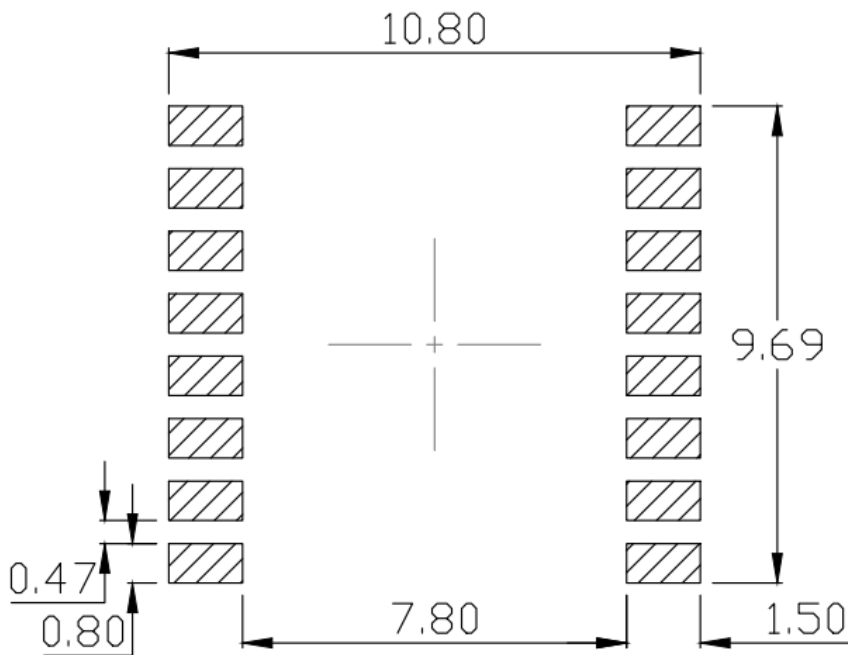
SOP16, 1.5A Output Smart Gate Driver Optocoupler

## PACKAGE DIMENSIONS (Dimensions in mm unless otherwise stated)



General Tolerance:  $\pm 0.25$  mm

## RECOMMENDED SOLDER MASK (Dimensions in mm unless otherwise stated)



Rev: 2.0

Release Date: 2024/10/15

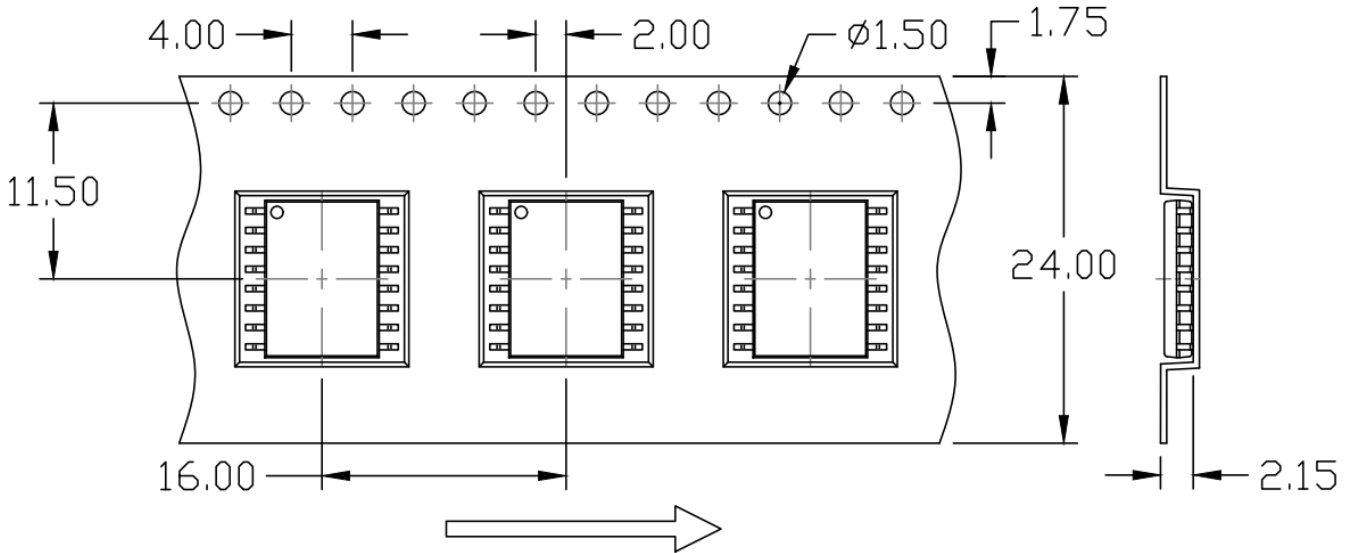


# MPCS-330J Series

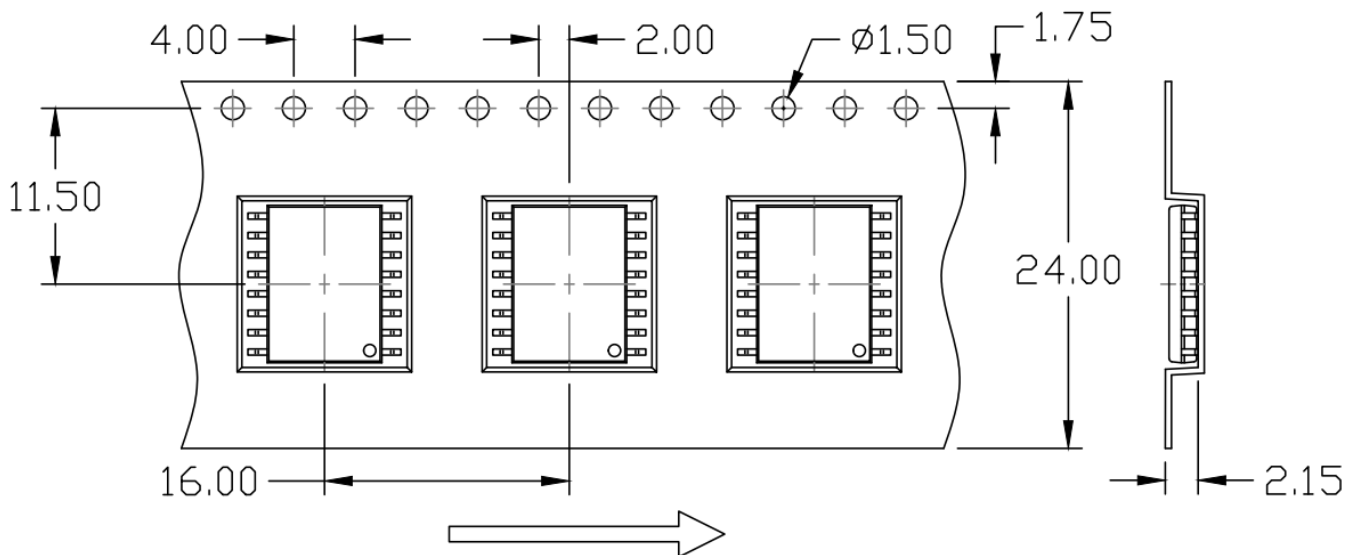
SOP16, 1.5A Output Smart Gate Driver Optocoupler

## CARRIER TAPE SPECIFICATIONS (Dimensions in mm unless otherwise stated)

### Option T1



### Option T2



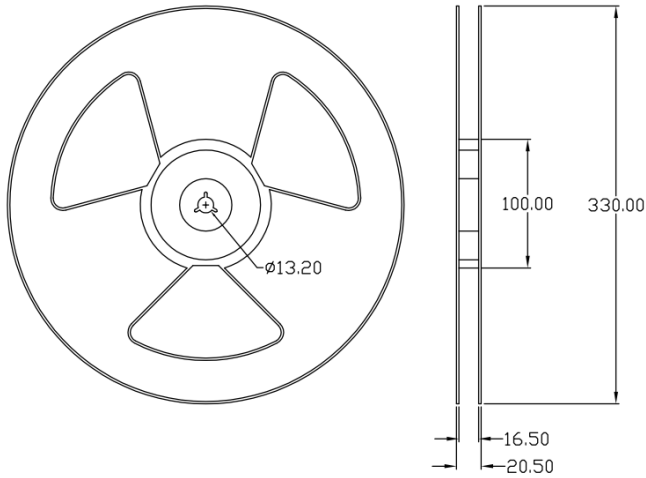
Rev: 2.0

Release Date: 2024/10/15

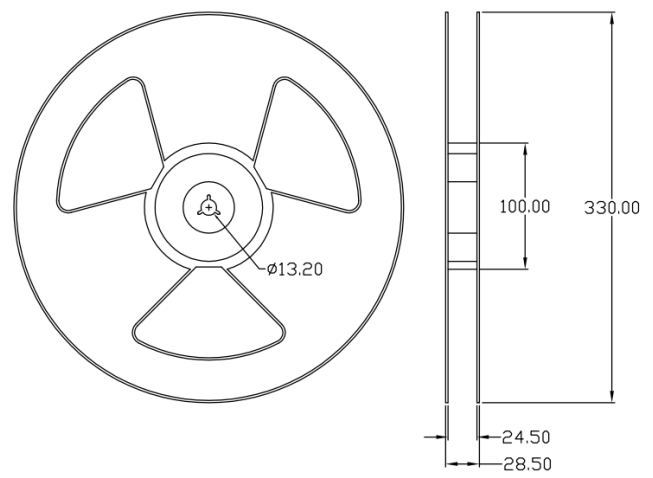


### REEL SPECIFICATIONS (Dimensions in mm unless otherwise stated)

Surface Mount Lead Forming (P Type)

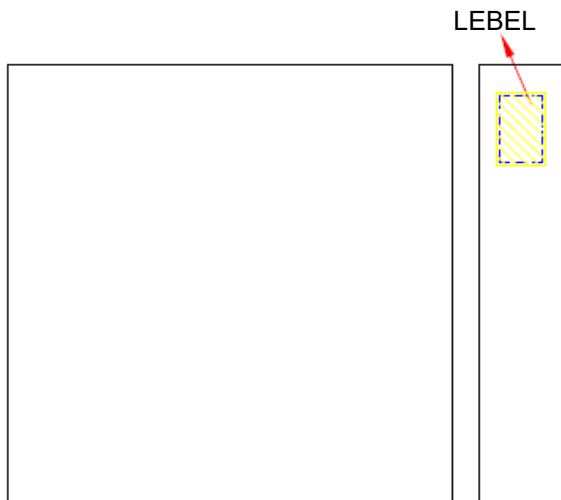


Surface Mount (Gullwing) Lead Forming (W Type)



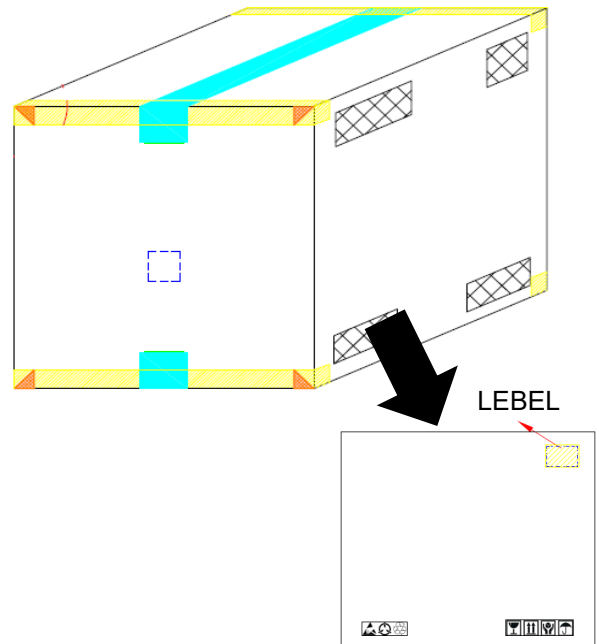
### BOX SPECIFICATIONS (Reel Type)

INNER BOX



L x W x H = 36cm x 36cm x 6.9cm

OUTER BOX



L x W x H = 45cm x 38cm x 38cm

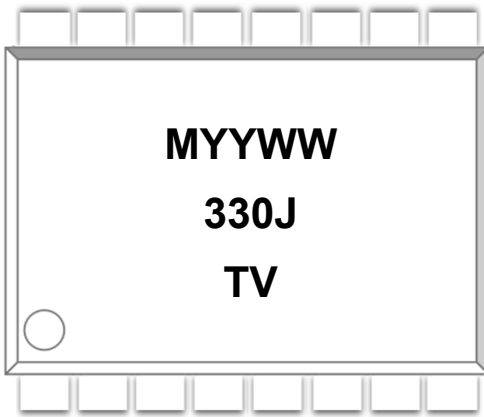


# MPCS-330J Series

SOP16, 1.5A Output Smart Gate Driver Optocoupler

## ORDERING AND MARKING INFORMATION

### MARKING INFORMATION



M : Company Abbr.  
 YY : Year date code  
 WW : 2-digit work week  
 330J : Part Number  
 T or H : Factory identification mark  
 V : VDE Identification(Option)

### ORDERING INFORMATION

**MPCS-330J-ZV**

MPC – Company Abbr.  
 S – Stack  
 330J – Part Number  
 Z – Tape and Reel Option (T1/T2)  
 V –VDE Option (V or None)

### LABEL INFORMATION



喆光照明光電股份有限公司  
 WISELITE Optronics Co., Ltd

Part No : XXXXXXXXXXXXXXXX Bin Code : X



Lot No : XXXXXXXXXXXX

Date Code : XXXX

Q'ty : XXXX pcs

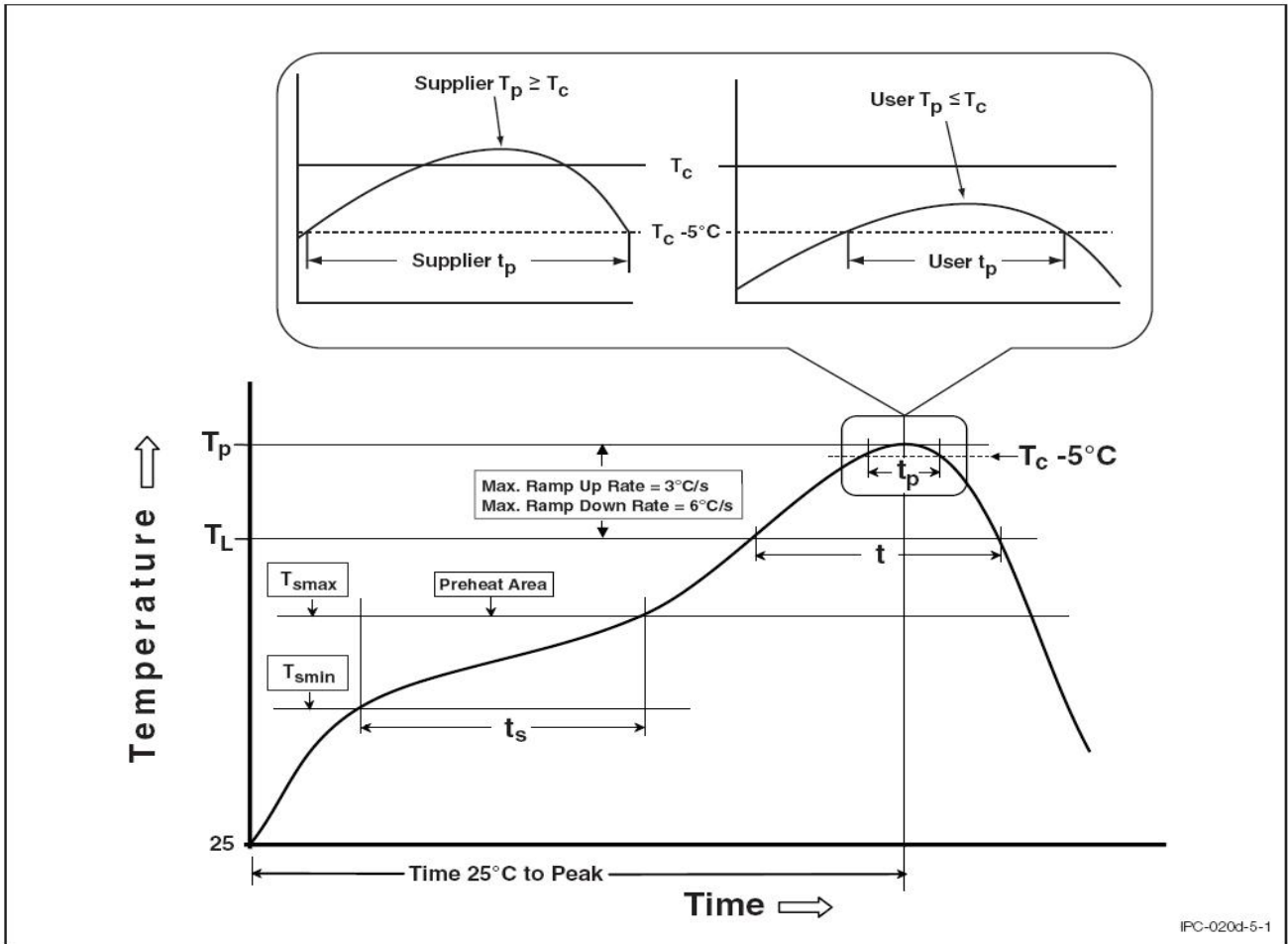


### PACKING QUANTITY

Option	Quantity	Quantity – Inner box	Quantity – Outer box
T1/T2	1000 Units/Reel	2 Reels/Inner box	5 Inner box/Outer box = 10k Units

### REFLOW INFORMATION

#### REFLOW PROFILE

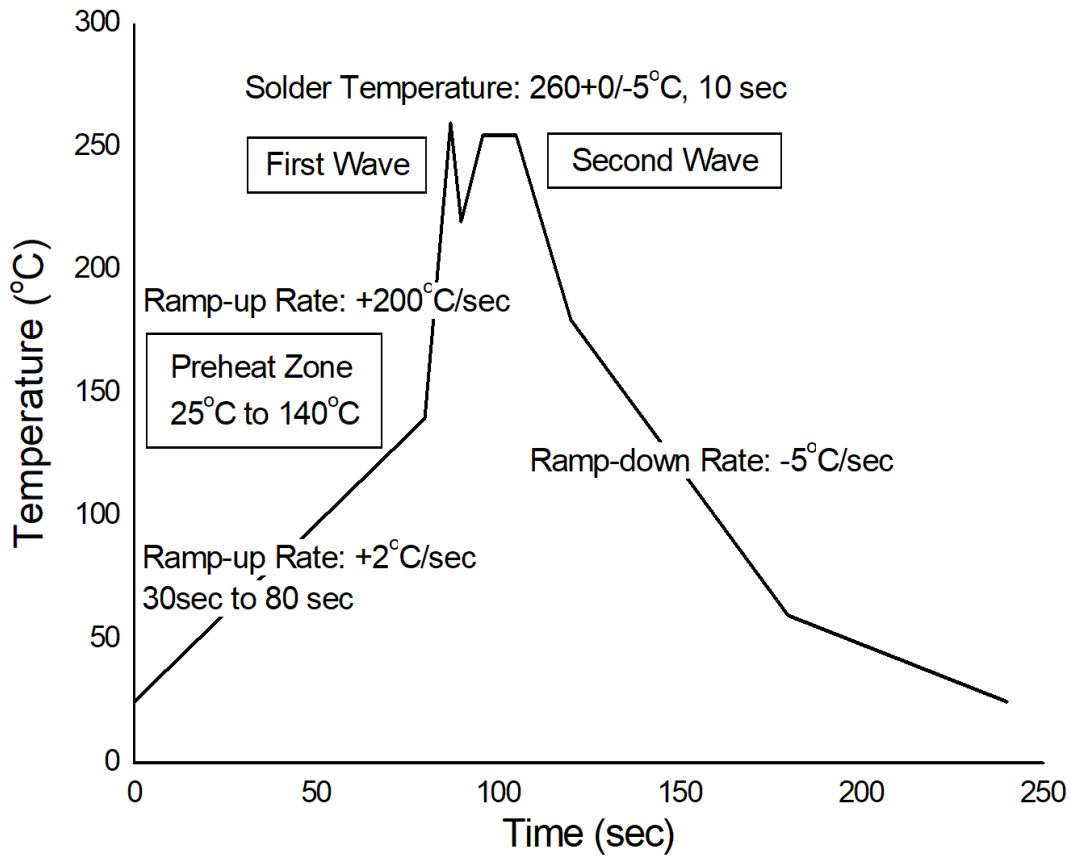


Profile Feature	Sn-Pb Assembly Profile	Pb-Free Assembly Profile
Temperature Min. ( $T_{smin}$ )	100°C	150°C
Temperature Max. ( $T_{smax}$ )	150°C	200°C
Time ( $t_s$ ) from ( $T_{smin}$ to $T_{smax}$ )	60-120 seconds	60-120 seconds
Ramp-up Rate ( $t_L$ to $t_P$ )	3°C/second max.	3°C/second max.
Liquidous Temperature ( $T_L$ )	183°C	217°C
Time ( $t_L$ ) Maintained Above ( $T_L$ )	60 – 150 seconds	60 – 150 seconds
Peak Body Package Temperature	235°C +0°C / -5°C	260°C +0°C / -5°C
Time ( $t_P$ ) within 5°C of 260°C	20 seconds	30 seconds
Ramp-down Rate ( $T_P$ to $T_L$ )	6°C/second max	6°C/second max
Time 25°C to Peak Temperature	6 minutes max.	8 minutes max.



### TEMPERATURE PROFILE OF SOLDERING

#### WAVE SOLDERING (JESD22-A111 COMPLIANT)



#### HAND SOLDERING BY SOLDERING IRON

Soldering Temperature	380±5°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

- WISELITE is continually improving the quality, reliability, function and design. WISELITE reserves the right to make changes without further notices.
- The characteristic curves shown in this datasheet are representing typical performance which are not guaranteed.
- WISELITE makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, WISELITE disclaims (a) any and all liability arising out of the application or use of any product, (b) any and all liability, including without limitation special, consequential or incidental damages, and (c) any and all implied warranties, including warranties of fitness for particular.
- 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, medical, life sustaining or lifesaving applications or any other application which can result in human injury or death.
- Please contact WISELITE 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 WISELITE'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.

单击下面可查看定价，库存，交付和生命周期等信息

[>>WISELITE\(蓝光\)](#)