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With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



## MOC306x



### DESCRIPTION

The MOC306x Series are optically coupled isolators consisting of a Gallium Arsenide infrared emitting diode coupled with a monolithic silicon detector performing the functions of a zero crossing bilateral triac mounted in a standard 6 pin dual-in-line package.

### FEATURES

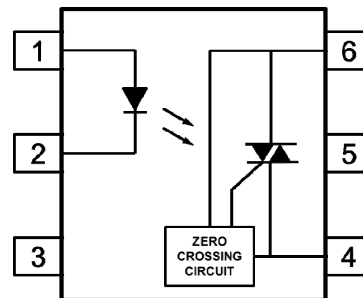
- Zero Voltage Crossing
- Triac Driver Output
- High  $V_{DRM}$  minimum 600V
- High Critical Rate of Rise of Off-State Voltage  $dv/dt$  minimum 600V/ $\mu$ s
- Isolation Voltage 5000V<sub>RMS</sub>
- RoHS Compliant
- UL File No. E91231 Package System "TT"
- VDE File No. 40028086

### APPLICATIONS

- Solenoid / Valve Controls
- Light Controls
- AC Motor Drivers
- Temperature Controls
- AC Motor Starters
- Solid State Relays

### ORDER INFORMATION

- Add Suffix "X" for VDE Approval
- Add G after PN for 10mm lead spacing
- Add SM after PN for Surface Mount
- Add SMT&R after PN for Surface Mount Tape & Reel



- 1 Anode
- 2 Cathode
- 3 NC
- 4 Main Terminal 1
- 5 Substrate, (Do not Connect)
- 6 Main Terminal 2

### ABSOLUTE MAXIMUM RATINGS

$T_A = 25^\circ\text{C}$  unless otherwise specified.

Stresses exceeding the absolute maximum ratings can cause permanent damage to the device.

Exposure to absolute maximum ratings for long periods of time can adversely affect reliability.

#### Input

Forward Current	50mA
Reverse Voltage	6V
Junction Temperature	125°C
Power dissipation	120mW

#### Output

Off State Output Terminal Voltage	600V
On State RMS Current	100mA <sub>RMS</sub>
Peak Repetitive Surge Current (Pulse Width 100 $\mu$ s, 120pps)	1.0A
Junction Temperature	125°C
Power Dissipation	150mW

#### Total Package

Isolation Voltage	5000V <sub>RMS</sub>
Total Power Dissipation	250mW
Operating Temperature	-40 to 100°C
Storage Temperature	-55 to 150°C
Lead Soldering Temperature (10s)	260°C

#### ISOCOM COMPONENTS 2004 LTD

Unit 25B, Park View Road West, Park View Industrial Estate  
Hartlepool, Cleveland, TS25 1PE, United Kingdom  
Tel: +44 (0)1429 863 609 Fax : +44 (0)1429 863 581  
e-mail: sales@isocom.co.uk  
<http://www.isocom.com>

#### ISOCOM COMPONENTS ASIA LTD

Hong Kong Office,  
Block A, 8/F, Wah Hing Industrial mansion,  
36 Tai Yau Street, San Po Kong, Kowloon, Hong Kong.  
Tel: +852 2995 9217 Fax : +852 8161 6292  
e-mail sales@isocom.com.hk



**MOC306x**

**ELECTRICAL CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$  unless otherwise specified)

**INPUT**

Parameter	Symbol	Test Condition	Min	Typ.	Max	Unit
Forward Voltage	$V_F$	$I_F = 20\text{mA}$		1.2	1.4	V
Reverse Current	$I_R$	$V_R = 6\text{V}$		0.05	10	$\mu\text{A}$

**OUTPUT**

Parameter	Symbol	Test Condition	Min	Typ.	Max	Unit
Peak Off-state Current Either Direction	$I_{\text{DRM}}$	$V_{\text{DRM}} = 600\text{V}$ $I_F = 0\text{mA}$ Note 1			500	nA
Peak Blocking Voltage Either Direction	$V_{\text{DRM}}$	$I_{\text{DRM}} = 500\text{nA}$	600			V
On-state Voltage Either Direction	$V_{\text{TM}}$	$I_{\text{TM}} = 100\text{mA (peak)}$			3.0	V
Critical Rate of Rise of Off-state Voltage (Static dv/dt)	dv/dt	$I_F = 0\text{mA}$ , $V_{\text{in}} = 240\text{V}_{\text{RMS}}$	1000			V/ $\mu\text{s}$

**COUPLED**

Parameter	Symbol	Test Condition	Min	Typ.	Max	Unit
Input Trigger Current Either Direction	$I_{\text{FT}}$	$V_{\text{TM}} = 3\text{V}$ Note 2  MOC3060 MOC3061 MOC3062 MOC3063			30 15 10 5	mA
Holding Current Either Direction	$I_{\text{H}}$			400		$\mu\text{A}$



**MOC306x**

**ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$  unless otherwise specified)**

**ZERO CROSSING CHARACTERISTICS**

Parameter	Symbol	Test Condition	Min	Typ.	Max	Unit
Inhibit Voltage	$V_{INH}$	$I_F = \text{Rated } I_{FT}$ , MT1-MT2 Voltage above which device will not trigger		5	20	V
Leakage Current at Inhibit State	$I_{DRM2}$	$I_F = \text{Rated } I_{FT}$ , $V_{DRM} = 600\text{V}$ , Off-state			500	$\mu\text{A}$

**ISOLATION**

Parameter	Symbol	Test Condition	Min	Typ.	Max	Unit
Isolation Voltage Input-Output	$V_{ISO}$	RH = 40 to 60%, t = 1 min Note 3	5000			$V_{RMS}$

Note 1 : Test Voltage must be applied within dv/dt rating.

Note 2 : Guaranteed to trigger at an  $I_F$  value less than or equal to max  $I_{FT}$ ,  
recommended  $I_F$  lies between Rated  $I_{FT}$  to Absolute Max  $I_F$ .

Note 3 : Measured with input leads shorted together and output leads shorted together.

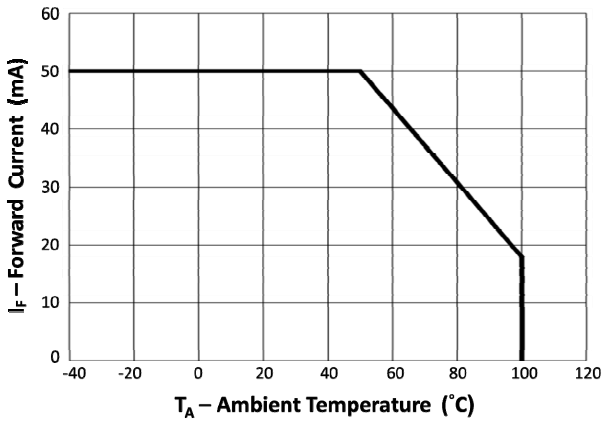


Fig 1 Forward Current vs Ambient Temperature

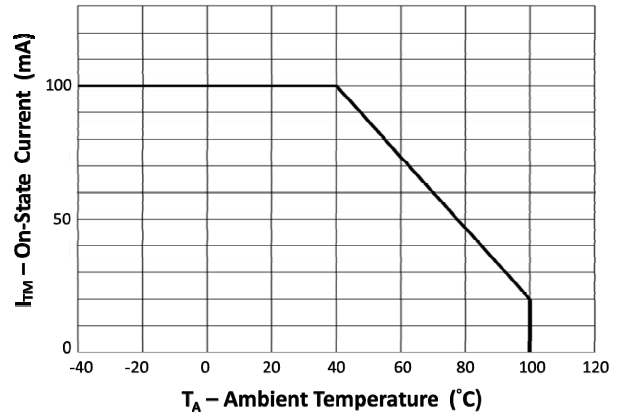


Fig 2 On-State Current vs Ambient Temperature

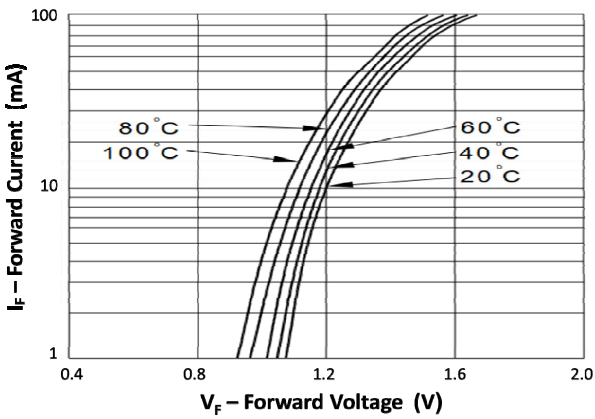


Fig 3 Forward Current vs Forward Voltage

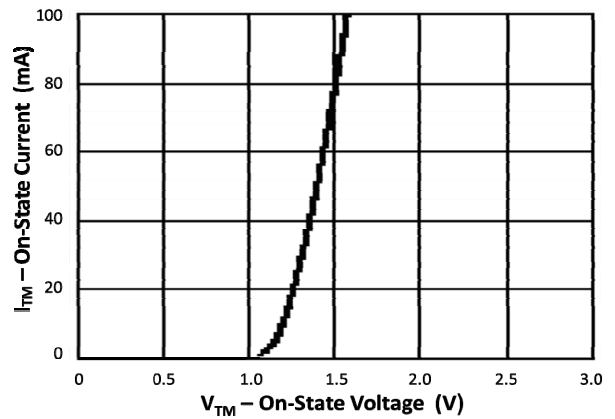


Fig 4 On-state Current vs On-State Voltage

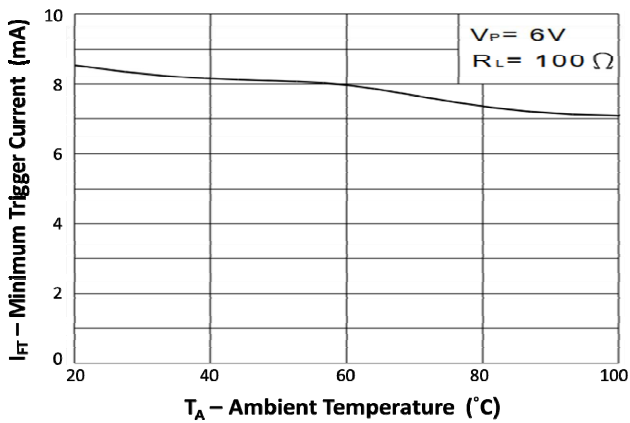


Fig 5 Minimum Trigger Current vs Ambient Temperature

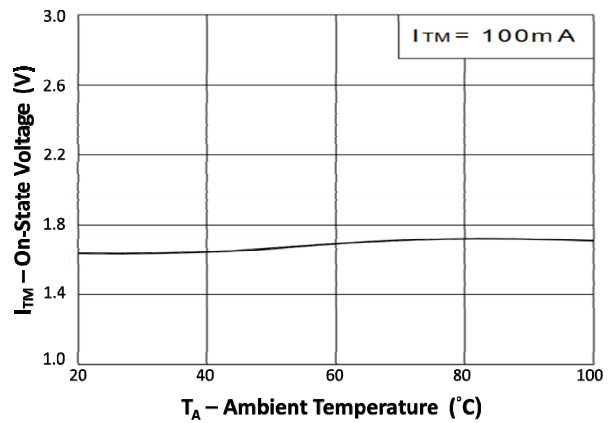


Fig 6 On-State Voltage vs Ambient Temperature

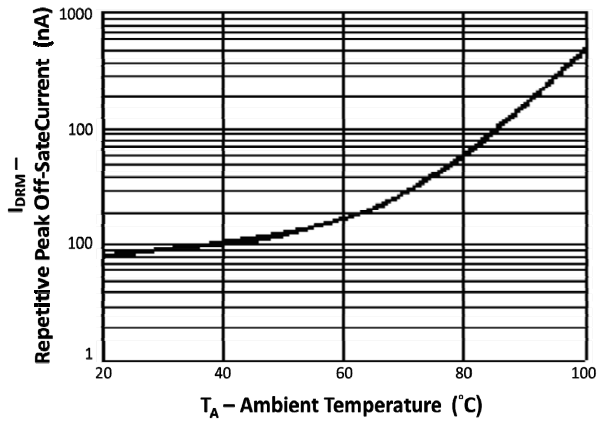


Fig 7 Repetitive Peak Off-State Current vs Ambient Temperature

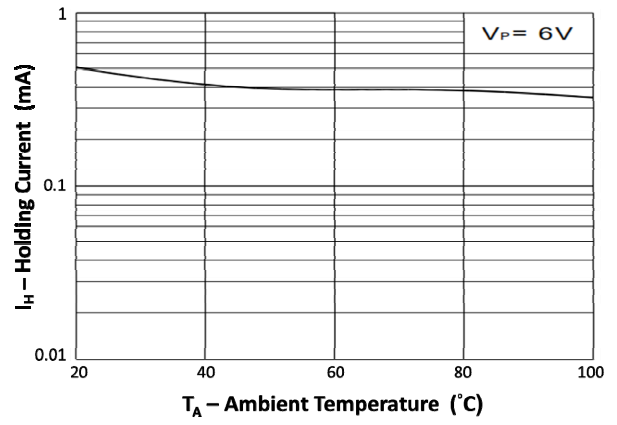


Fig 8 Holding Current vs Ambient Temperature

## MOC306x

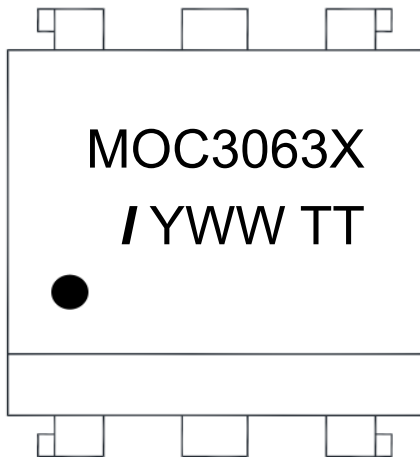
### ORDER INFORMATION

MOC306x (UL Approval)			
After PN	PN	Description	Packing quantity
None	MOC3060, MOC3061, MOC3062, MOC3063	Standard DIP6	65 pcs per tube
G	MOC3060G, MOC3061G, MOC3062G, MOC3063G	10mm Lead Spacing	65 pcs per tube
SM	MOC3060SM, MOC3061SM, MOC3062SM, MOC3063SM	Surface Mount	65 pcs per tube
SMT&R	MOC3060SMT&R, MOC3061SMT&R, MOC3062SMT&R, MOC3063SMT&R	Surface Mount Tape & Reel	1000 pcs per reel

MOC306x (UL and VDE Approvals)			
After PN	PN	Description	Packing quantity
None	MOC3060X, MOC3061X, MOC3062X, MOC3063X	Standard DIP6	65 pcs per tube
G	MOC3060XG, MOC3061XG, MOC3062XG, MOC3063XG	10mm Lead Spacing	65 pcs per tube
SM	MOC3060XSM, MOC3061XSM, MOC3062XSM, MOC3063XSM	Surface Mount	65 pcs per tube
SMT&R	MOC3060XSMT&R, MOC3061XSMT&R, MOC3062XSMT&R, MOC3063XSMT&R	Surface Mount Tape & Reel	1000 pcs per reel

**DEVICE MARKING**

**Example : MOC3063X**



MOC3063X Denotes Device Part Number

/ denotes Isocom

Y denotes 2 digit Year code

WW denotes 2 digit Week code

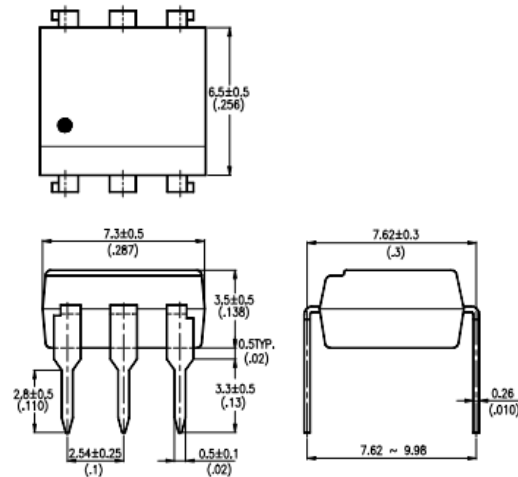
TT UL Package System Code



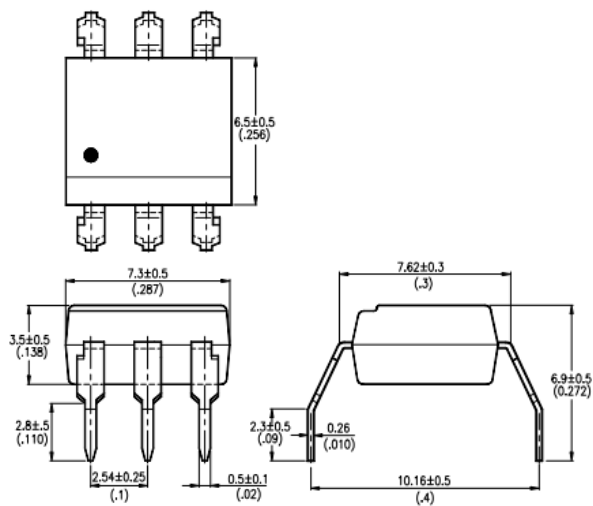
# MOC306x

## PACKAGE DIMENSIONS in mm (inch)

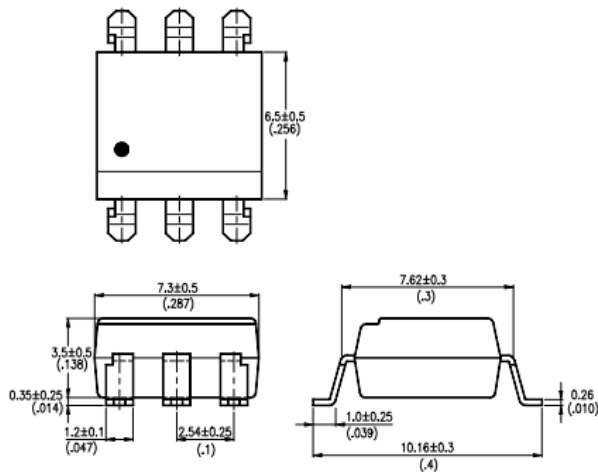
### DIP



### G Form

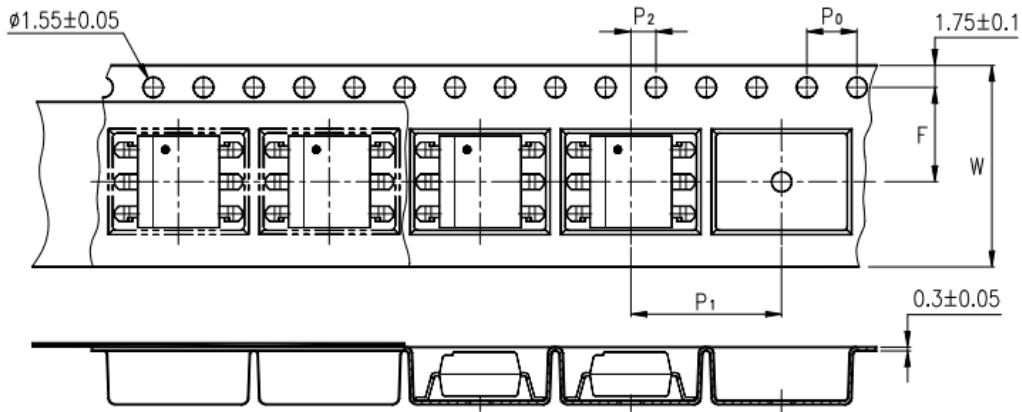


### SMD



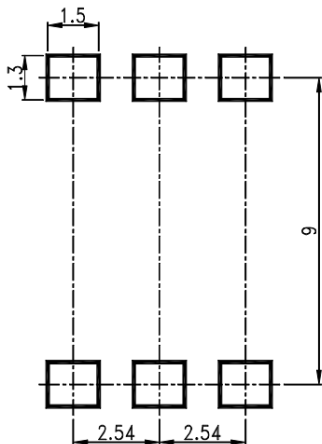
## MOC306x

### TAPE AND REEL PACKAGING

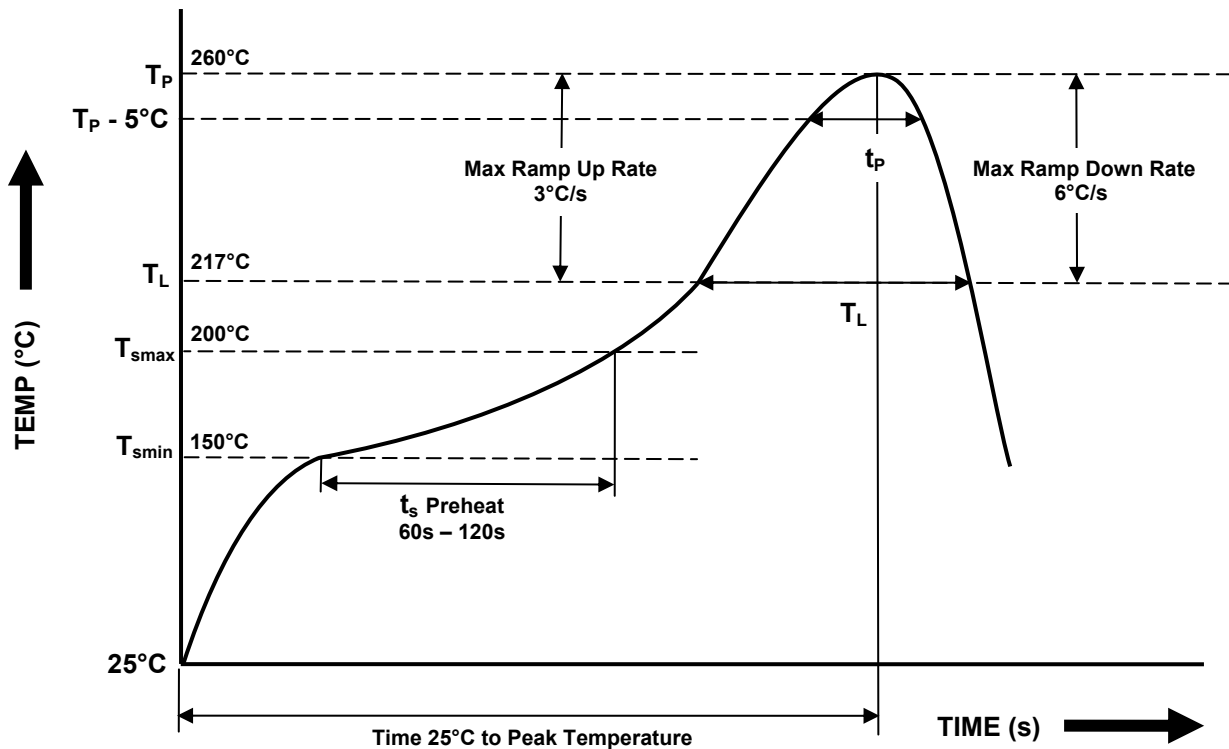


Description	Symbol	Dimension mm (inch)
Tape Width	W	16 ± 0.3 (0.63)
Pitch of Sprocket Holes	P <sub>0</sub>	4 ± 0.1 (0.15)
Distance of Compartment to Sprocket Holes	F	7.5 ± 0.1 (0.295)
	P <sub>2</sub>	2 ± 0.1 (0.079)
Distance of Compartment to Compartment	P <sub>1</sub>	12 ± 0.1 (0.47)

### RECOMMENDED PAD LAYOUT for SMD (mm)



**IR REFLOW SOLDERING TEMPERATURE PROFILE**  
**One Time Reflow Soldering is Recommended.**  
**Do not immerse device body in solder paste.**



Profile Details	Conditions
<b>Preheat</b> - Min Temperature (T <sub>SMIN</sub> ) - Max Temperature (T <sub>SMAX</sub> ) - Time T <sub>SMIN</sub> to T <sub>SMAX</sub> (t <sub>s</sub> )	150°C 200°C 60s - 120s
<b>Soldering Zone</b> - Peak Temperature (T <sub>P</sub> ) - Time at Peak Temperature - Liquidous Temperature (T <sub>L</sub> ) - Time within 5°C of Actual Peak Temperature (T <sub>P</sub> - 5°C) - Time maintained above T <sub>L</sub> (t <sub>L</sub> ) - Ramp Up Rate (T <sub>L</sub> to T <sub>P</sub> ) - Ramp Down Rate (T <sub>P</sub> to T <sub>L</sub> )	260°C 10s max 217°C 30s max 60s - 100s 3°C/s max 6°C/s max
Average Ramp Up Rate (T <sub>smax</sub> to T <sub>P</sub> )	3°C/s max
Time 25°C to Peak Temperature	8 minutes max



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