



DESCRIPTION:

The products are gate driver opto-couplers in a plastic WSOP8 package. The device consists of an infrared LED optically coupled to an integrated high-gain, high-speed photodetector IC chip. It provides guaranteed performance and specifications at temperature up to 110 °C. It is physically smaller and compliant with international safety standards for reinforced insulation. It thus provides a smaller footprint solution for applications that require safety standard certification. An internal noise shield provides a guaranteed common-mode transient immunity of $\pm 35 \text{ kV}/\mu\text{s}$. It is ideal for small class IGBT and power MOSFET gate drive. The products are widely used in industrial inverters, IGBT gate drivers, MOSFET gate drivers, induction cooktop and home appliances.

MAIN FEATURES

4A maximum peak output current
High isolation 7500 VRMS
Buffer logic type
Operating temperature range -40°C to 110°C
REACH & RoHS compliance
HBM: H3A; MM: M4; CDM: C3
CQC approved
VDE approved
UL approved



Truth Table

LED	$V_{CC}-V_{EE}$ (Positive Going)	$V_{CC}-V_{EE}$ (Negative Going)	Output
OFF	0-30V	0-30V	Low
ON	0-12.1V	0-11.1V	Low
ON	12.1V-13.5V	11.1V-12.4V	TRANSITION
ON	13.5V-30V	12.4V-30V	HIGH



ABSOLUTE MAXIMUM RATINGS (Temperature=25°C)

LED	Forward Current	I_F	50	mA
	Peak Forward Current	I_{FP}	1	A
	Reverse Voltage	V_R	6	V
	Power Dissipation	P_D	100	mW
Detector	Output Voltage	V_O	35	V
	Supply Voltage	V_{CC}	35	V
	Power Dissipation	P_C	400	mW
Isolation Voltage		V_{iso}	7500	Vrms
Operating Temperature		T_{opr}	-40~110	
Junction Temperature		T_j	125	
Storage Temperature		T_{stg}	-55~125	
Total Power Dissipation		P_{tot}	500	mW
Soldering Temperature		T_{sol}	260	

NOTE1 μ

NOTE2

ELECTRICAL CHARACTERISTICS (Temperature=25°C)

Input	Forward Voltage	V_F	$I_F=10mA$	-	1.35	1.6	V
	Reverse Current	I_R	$V_R=6V$	-	-	1	μA
	Terminal Capacitance	C_t	$V=0, f=1MHz$	-	60	-	pF
Output	Peak High-level Output Current	I_{OPH}	$V_O=V_{CC}-4V$, Pulse width $\leq 50\mu s$	-1	-	-	A
			$V_O=V_{CC}-10V$, Pulse width $\leq 10\mu s$	-3	-	-	A
	Peak Low-level Output Current	I_{OPL}	$V_O=V_{EE}+2.5V$, Pulse width $\leq 50\mu s$	1	-	-	A
			$V_O=V_{EE}+10V$, Pulse width $\leq 10\mu s$	3	-	-	A
	High Level Supply Current	I_{CCH}	$I_F=10mA$ $R_g=10\Omega$, $C_g=25nF$	-	-	3	mA
	Low Level Supply Current	I_{CCL}	$V_F=0V$, $R_g=10\Omega$, $C_g=25nF$	-	-	3	mA



	High Level Output Voltage	V_{OH}	$I_F=5mA$, $V_{CC}=10V$, $I_O=-100mA$	6	8.4	-	V
	Low Level Output Voltage	V_{OL}	$V_F=0.8V$, $V_{CC}=10V$, $I_O=100mA$	-	0.3	1	V
	Threshold Input Current	I_{FLH}	$V_{CC}=15V$, $V_O=1V$	-	1.5	4	mA
	Threshold Input Voltage	V_{FHL}	$V_{CC}=15V$, $V_O=1V$	0.8	-	-	V
	Supply Voltage	V_{CC}	-	15	-	30	V
	High Level Output Voltage	V_{OH}	$I_F=5mA$, $V_{CC}=10V$, $I_O=-100mA$	6	8.4	-	V
	UVLO Threshold	VUVLO+	$V_O=5V$, $I_F=10mA$	12.1	12.8	13.5	V
		VUVLO-	$V_O=5V$, $I_F=10mA$	11.1	11.8	12.4	V

SWITCHING SPECIFICATION

Propagation Delay Time to High Output Level	t_{PLH}	$R_g=47\Omega$, $C_g=3nF$, $I_F=0 \rightarrow 5mA$, $V_{CC}=30V$	30	-	500	ns
Propagation Delay Time to Low Output Level	t_{PHL}	$R_g=47\Omega$, $C_g=3nF$, $I_F=5 \rightarrow 0mA$, $V_{CC}=30V$	30	-	500	
Propagation Delay Difference Between Any Two Parts	$t_{PHL} - t_{PLH}$	$R_g=47\Omega$, $C_g=3nF$, $I_F=0 \leftarrow 5mA$, $V_{CC}=30V$	-	-	350	
Output Rise Time (10 to 90%)	t_r	$R_g=47\Omega$, $C_g=3nF$, $I_F=0 \rightarrow 5mA$, $V_{CC}=30V$	-	50	-	
Output Fall Time (90 to 10%)	t_f	$R_g=47\Omega$, $C_g=3nF$, $I_F=5 \rightarrow 0mA$, $V_{CC}=30V$	-	50	-	



Common Mode Transient Immunity at High Level Output	$ CM_H $	$I_F=5mA$ $V_{CC}=30V$, $T_a=25^\circ C$, $V_{O(min)}=26V$ $V_{CM}=1000V_{pp}$	± 35	-	-	kV/ μs
Common Mode Transient Immunity at Low Level Output	$ CM_L $	$I_F=0mA$ $V_{CC}=30V$, $T_a=25^\circ C$, $V_{O(max)}=1V$ $V_{CM}=1000V_{pp}$	± 35	-	-	kV/ μs

Note1

Note2

Note3

Recommended Operating Conditions

Input On-state Current	$I_{F(ON)}$	6.5	-	10	mA
Input Off-state Voltage	$V_{F(OFF)}$	0	-	0.8	V
Supply Voltage	V_{CC}	15	-	30	V
Operating Frequency	f	-	-	25	KHz

Note1

Note2

Note3

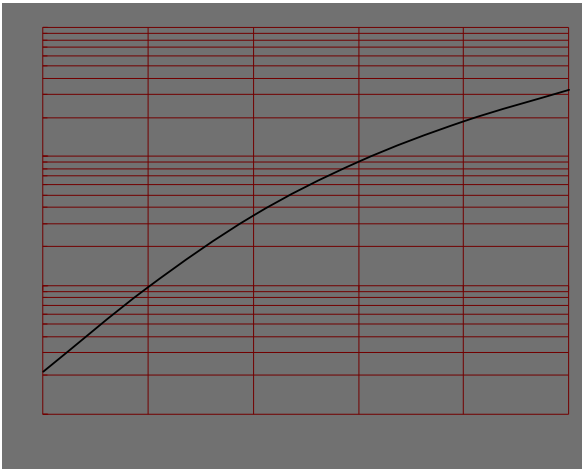
Note4

Note5

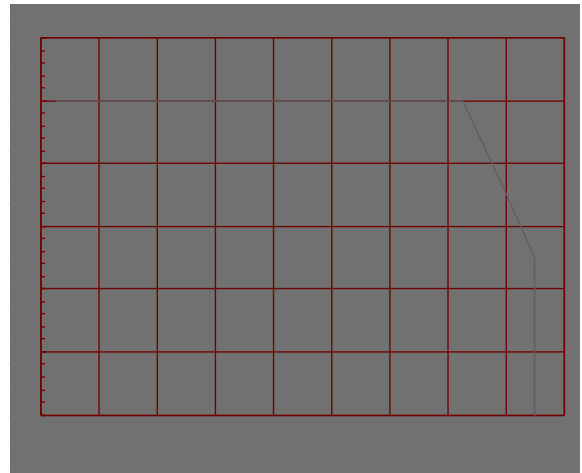


Characteristics Curves

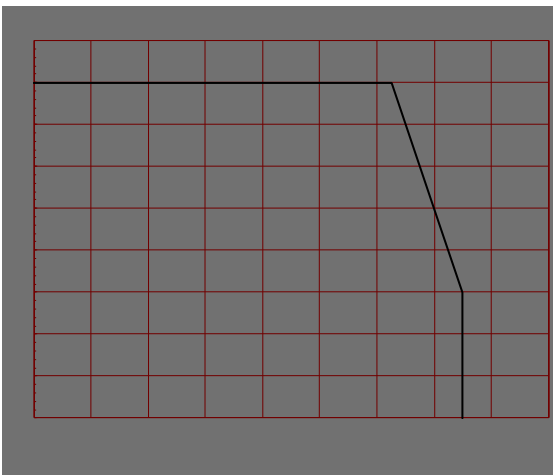
Forward Current vs. Forward Voltage



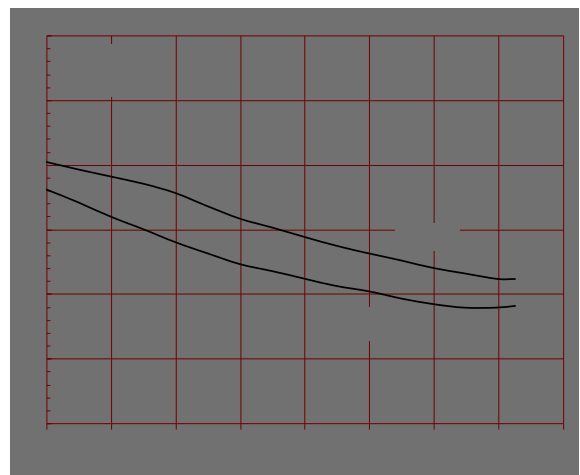
Max. Allowable LED Forward Current vs. Ambient Temperature



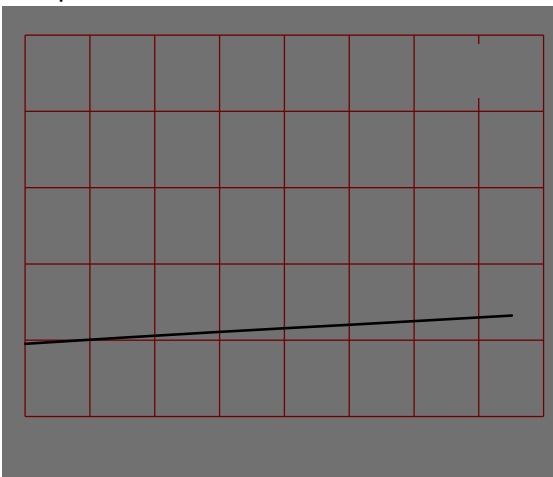
Collector Power Dissipation vs. Ambient Temperature



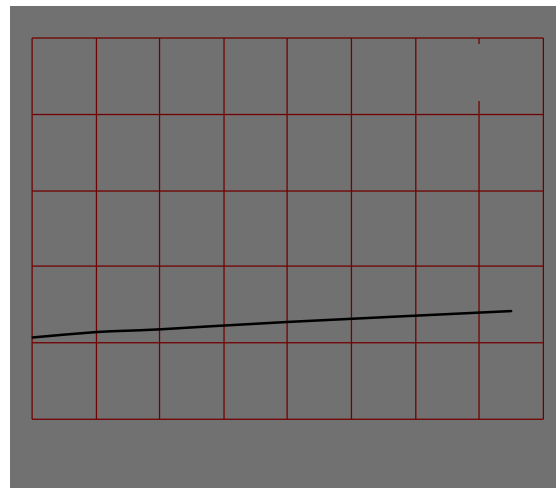
Threshold Input Current vs. Ambient Temperature



Low-level Supply Current vs. Ambient Temperature

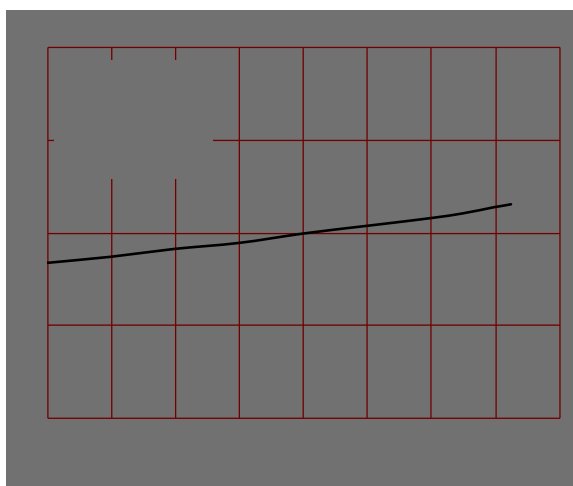


High-level Supply Current vs. Ambient Temperature

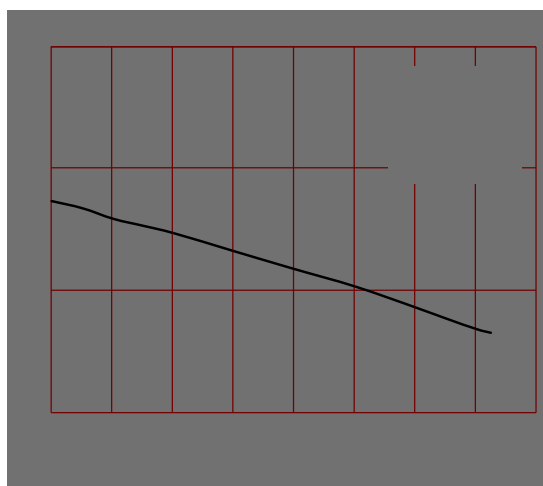




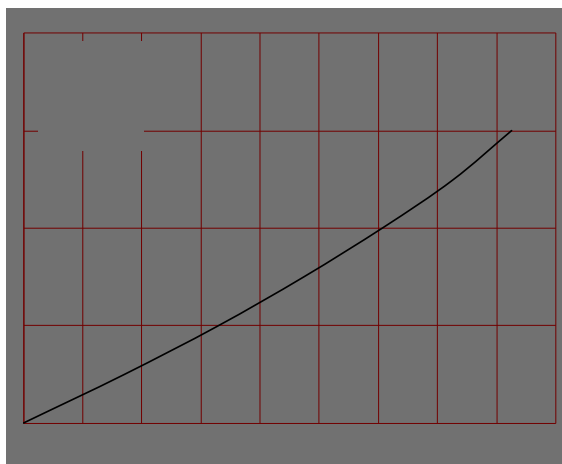
Low-level Output Voltage vs. Ambient Temperature



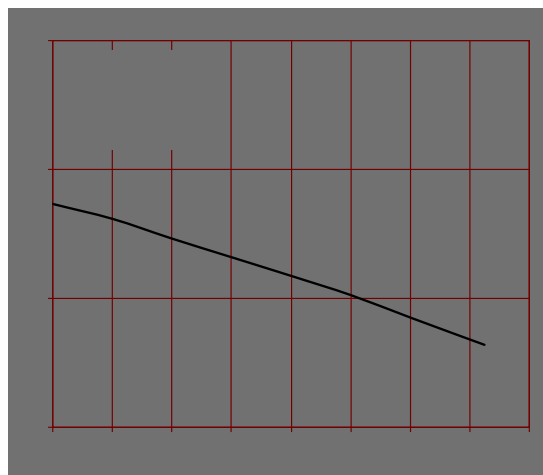
High-level Output Voltage vs. Ambient Temperature



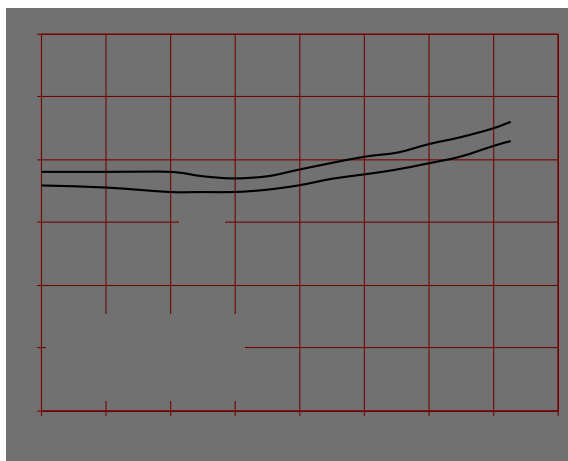
Peak Low-level Output Current vs. Low-level Output Voltage



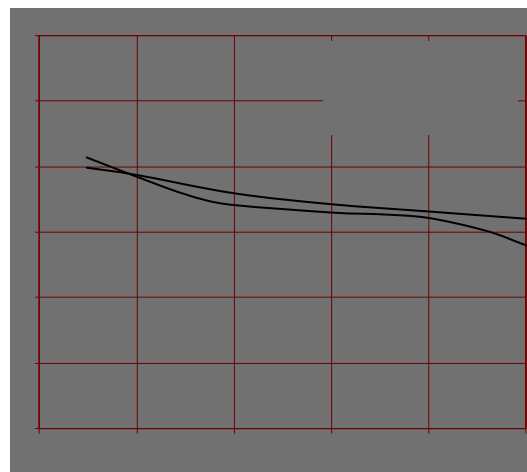
High-level Output Voltage Drop vs. Ambient Temperature



Propagation Delay Time vs. Ambient Temperature

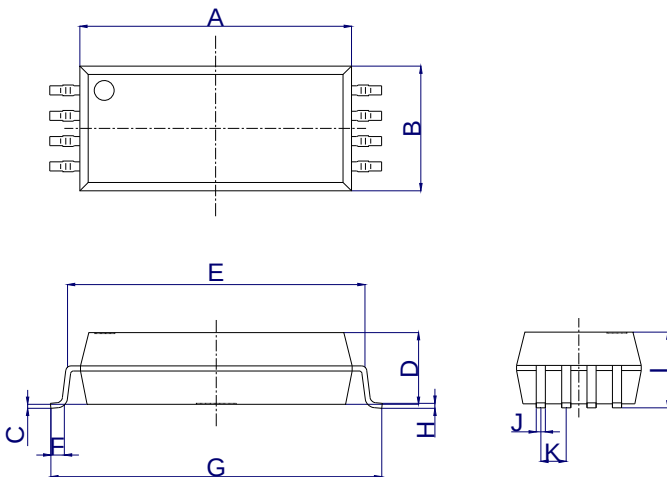


Propagation Delay Time vs. Forward Current



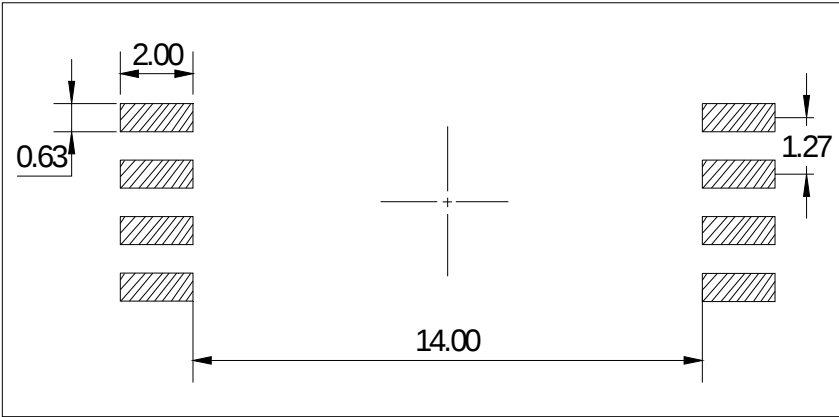


Package Dimension (Unit: mm)



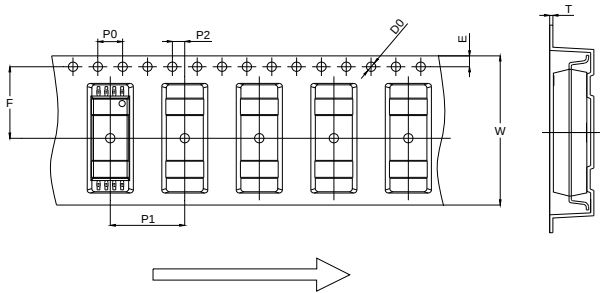
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	13.50		13.70	0.531		0.539
B	6.15		6.35	0.242		0.250
C	0.10		0.30	0.004		0.012
D	3.50		3.70	0.138		0.146
E	14.71		15.31	0.579		0.603
F	0.52		1.02	0.020		0.040
G	16.36		16.86	0.644		0.664
H	0.10		0.40	0.004		0.016
I	3.65		3.95	0.144		0.156
J	0.307		0.607	0.012		0.024
K	1.02		1.52	0.040		0.060

RECOMMENDED SOLDER MASK (Dimensions in mm unless otherwise stated)





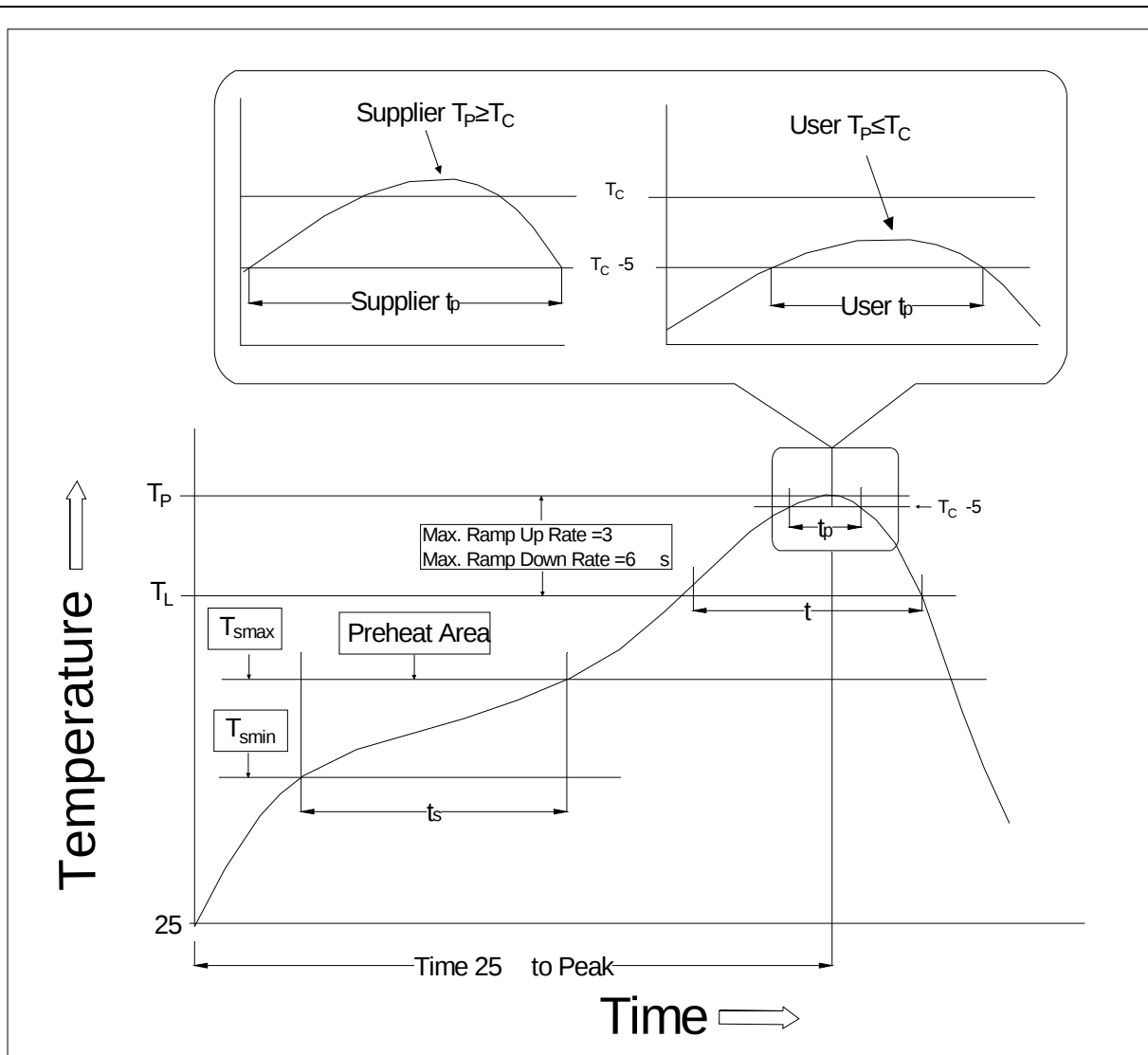
CARRIER TAPE SPECIFICATIONS (Dimensions in mm unless otherwise stated)



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
D0	1.40	1.50	1.60	0.055	0.059	0.063
P0	3.90	4.00	4.10	0.154	0.157	0.161
P1	11.90	12.00	12.10	0.469	0.472	0.476
P2	1.90	2.00	2.10	0.075	0.079	0.083
E	1.65	1.75	1.85	0.065	0.069	0.073
F	11.40	11.50	11.60	0.449	0.453	0.457
T	0.35	0.40	0.45	0.014	0.016	0.018
W	23.70	24.00	24.30	0.933	0.945	0.957



REFLOW INFORMATION



Temperature Min. (T _{smin})	100	150
Temperature Max. (T _{smax})	150	200
Time (t _s) from (T _{smin} to T _{smax})	60-120 seconds	60-120 seconds
Ramp-up Rate (t _L to t _P)	3 /second max.	3 /second max.
Liquidus Temperature (T _L)	183	217
Time (t _L) Maintained Above (T _L)	60-150 seconds	60-150 seconds
Peak Body Package Temperature	235 +0 /-5	260 +0 /-5
Time (t _P) within 5 of 260	20 seconds	30 seconds
Ramp-down Rate (T _P to T _L)	6 /second max.	6 /second max.
Time 25 to Peak Temperature	6 minutes max.	8 minutes max.



Note:

1. Reflow soldering is recommended at the temperatures and times shown, no more than three times.
2. Avoid direct contact between the epoxy body and any tools or surfaces exceeding its maximum storage temperature.
3. Application of pressure on the epoxy body is prohibited at elevated temperatures. In specific scenarios, any applied force must not exceed 2.5N.
4. Ensure the component has cooled to ambient temperature before proceeding with any subsequent manufacturing steps.
5. The component has a shelf life of 12 months.

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