

Product Specification
产品规格书

Customer Name:

客户名称

Customer P/N:

客户料号

Product Name:

产品名称

晶体管光耦

Product P/N:

产品型号

MT-817(ABCD)

Sending Date:

制定日期

2026/04/15

<input type="checkbox"/> Technical Reference 技术参考		<input type="checkbox"/> Sample 样品		<input checked="" type="checkbox"/> Mass Product 量产供货	
Customer approval 客户审核			Supplier approval 供方审核		
Approved 核准	Audit 确认	Confirmation 制作	Approved 核准	Audit 确认	Confirmation 制作
<input type="checkbox"/> Qualified 接受	<input type="checkbox"/> Disqualified 不接受		Date: 日期:		



ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
SENSITIVE DEVICES

SHENZHEN MATELIGHT ELECTRONICS CO.,LTD.

Address: 5th Floor, No. 8-5 Factory, Tongfu Industrial Zone, Aiqun Road, Shangwu

Community, Shiyuan Street, Bao'an District, Shenzhen

公司地址: 深圳市宝安区石岩街道上屋社区爱群路同富裕工业区 8-5 号厂房 5 楼

Tel(电话): +86-13420946693 QQ: 3001291430 Skype/邮箱:hedy.xu@matelight.com

Photocoupler Model No.: MT-817(ABCD)

Features:

- Current transfer ratio (50%~600% at $I_F=5\text{mA}$; $V_{ce}=5\text{V}$)
- High input-output isolation voltage($V_{iso}= 5000\text{Vrms}$)
- Response time (t_r : typ.4 μs at $V_{CE} = 2\text{V}$, $I_C = 2\text{mA}$, $R_L = 100\ \Omega$)
- ESD pass (HBM8000V/MM2000V)
- MSL class1
- Safety approval

UL 1577

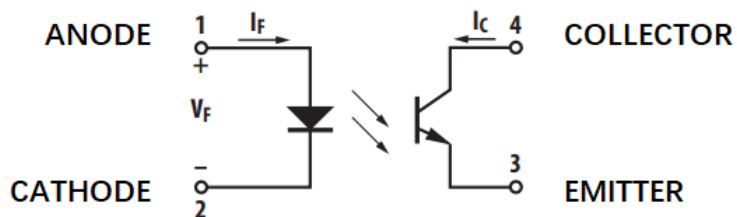
VDE

- RoHS compliance

Applications:

- Hybrid substrates that require high density mounting
- Programmable controllers

Functional Diagram



Absolute Maximum Ratings**(Ta=25°C)**

	Parameter	Symbol	Rating	Unit
Input	Forward Current	I_F	50	mA
	Reverse Voltage	V_R	6	V
	Power Dissipation	P	70	mW
	Peak Forward Current (100 μ s pulse, 100Hz frequency)	IFP	1	A
Output	Collector - Emitter Voltage	V_{CE0}	80	V
	Emitter - Collector Voltage	V_{ECO}	6	V
	Collector Current	I_C	50	mA
	Collector Power Dissipation	P_C	150	mW
	Total Power Dissipation	P_{tot}	200	mW
	Isolation Voltage	V_{iso}	5000	V_{rms}
	Operating Temperature	T_{opr}	-55~+110	°C
	Storage Temperature	T_{stg}	-55~+150	°C
	Soldering Temperature	T_{sol}	260	°C

AC For 1 Minute, R.H. = 40 ~ 60%

Isolation voltage shall be measured using the following method

- (1) Short between anode and cathode on the primary side and between collector and emitter on the secondary side
- (2) The isolation voltage tester with zero-cross circuit shall be used
- (3) The waveform of applied voltage shall be a sine wave

Electrical / Optical Characteristics

(Ta=25°C)

	Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Input	Forward Voltage	V_F	$I_F=20mA$	-	1.2	1.4	V
	Reverse Current	I_R	$V_R=4V$	-	-	10	μA
	Terminal Capacitance	C_t	$V=0, f=1KHz$	-	30	250	pF
Output	Collector Dark Current	I_{CEO}	$V_{CE}=20V, I_F=0$			100	nA
	Collector-Emitter Breakdown Voltage	BV_{CEO}	$I_C=0.1mA, I_F=0$	80	-	-	V
	Emitter-Collector Breakdown Voltage	BV_{ECO}	$I_E=10\mu A, I_F=0$	6	-	-	V
TRANSFER CHARACTERISTICS	Collector Current	I_C	$I_F=5mA, V_{CE}=5V$	2.5	-	30	mA
	*Current Transfer Ratio	CTR	$I_F=5mA, V_{CE}=5V$	50	-	600	%
	Collector-Emitter Saturation Voltage	$V_{CE(Sat)}$	$I_F=20mA, I_C=1mA$	-	0.1	0.2	V
	Isolation Resistance	R_{iso}	DC500V, 40 ~ 60% R.H.	5×10^{10}	1×10^{11}	-	Ω
	Floating Capacitance	C_f	$V=0, f=1MHz$	-	0.6	1	pF
	Cut-off Frequency	f_c	$V_{CE}=5V, I_C=2mA$ $R_L=100\Omega, -3dB$	-	80	-	kHz
	Response Time (Rise)	t_r	$V_{CE}=2V, I_C=2mA$ $R_L=100\Omega$	-	4	18	μs
	Response Time (Fall)	t_f		-	3	18	μs

$CTR = I_C / I_F * 100\%$

CTR Rank	Min	Max	Condition
A	80	160	$I_F=5mA; V_{ce}=5V$
B	130	260	$I_F=5mA; V_{ce}=5V$
C	200	400	$I_F=5mA; V_{ce}=5V$
D3	300	450	$I_F=5mA; V_{ce}=5V$
D	300	600	$I_F=5mA; V_{ce}=5V$
None Or Other	50	600	$I_F=5mA; V_{ce}=5V$

CHARACTERISTICS CURVES

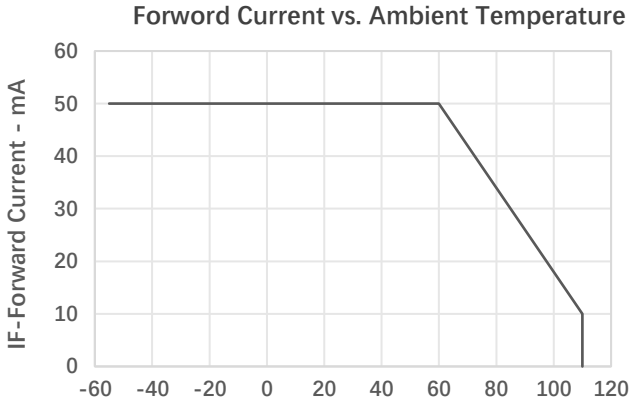


Figure 1. T_A -Ambient Temperature - °C

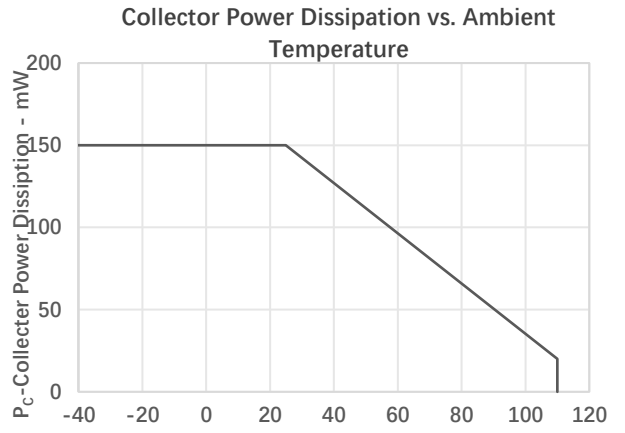


Figure 2. T_A - Ambient Temperature - °C

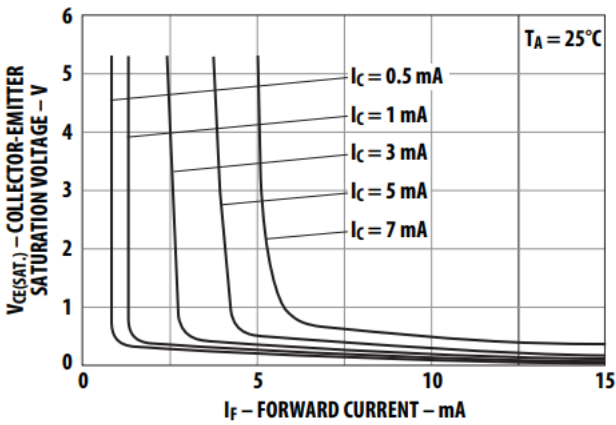


Figure 3. Collector-emitter saturation voltage vs. forward current.

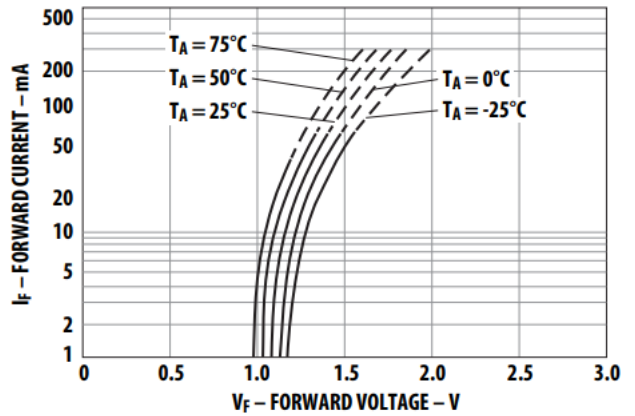


Figure 4. Forward current vs. forward voltage.

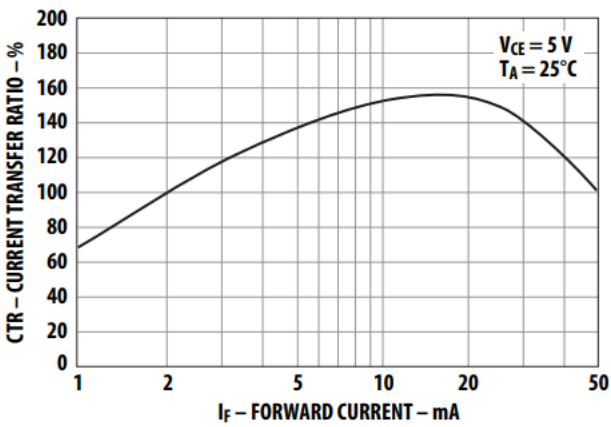


Figure 5. Current transfer ratio vs. forward current.

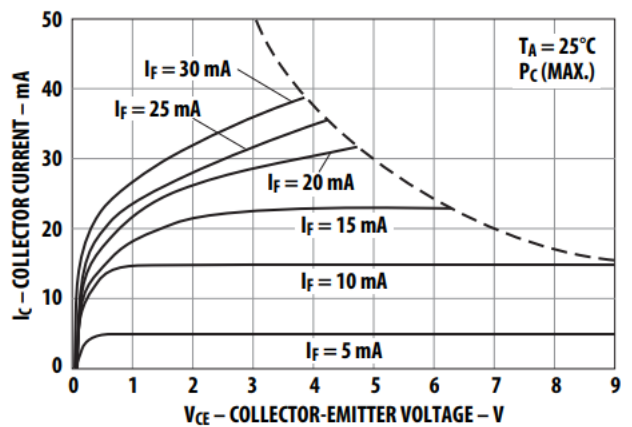


Figure 6. Collector current vs. collector-emitter voltage.

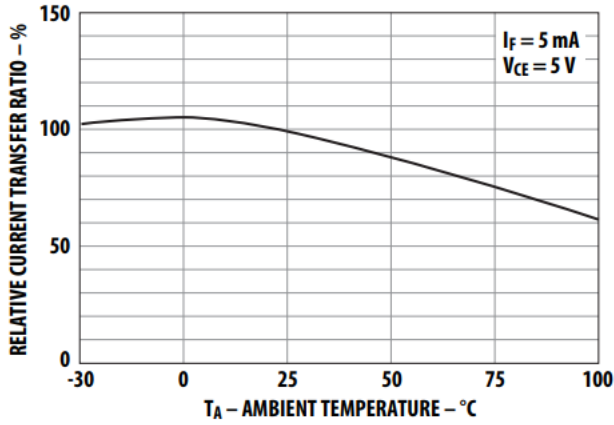


Figure 7. Relative current transfer ratio vs. temperature.

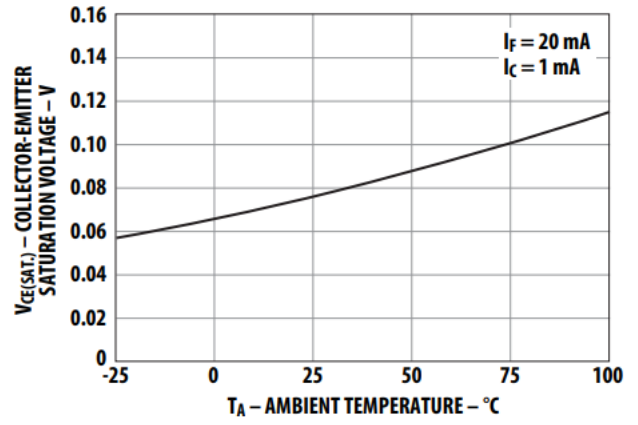


Figure 8. Collector-emitter saturation voltage vs. temperature.

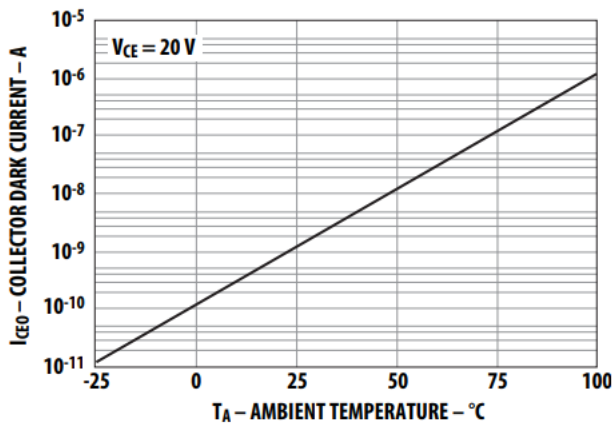


Figure 9. Collector dark current vs. temperature.

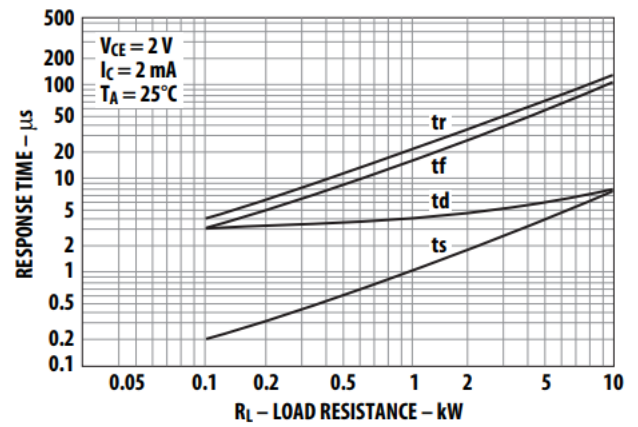


Figure 10. Response time vs. load resistance.

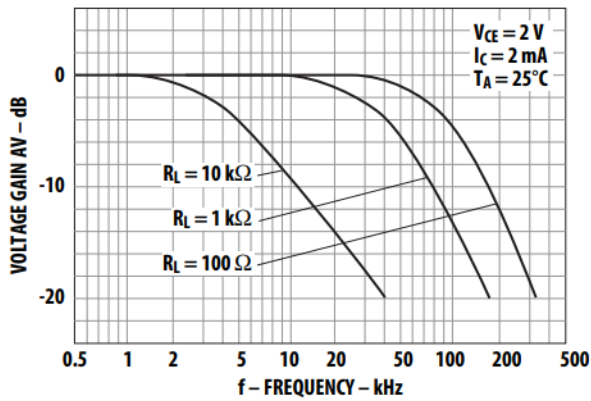
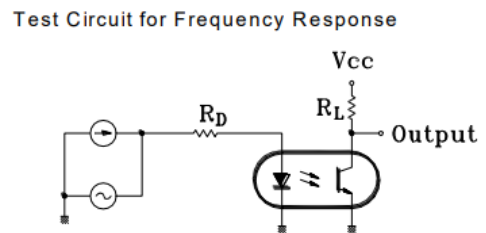
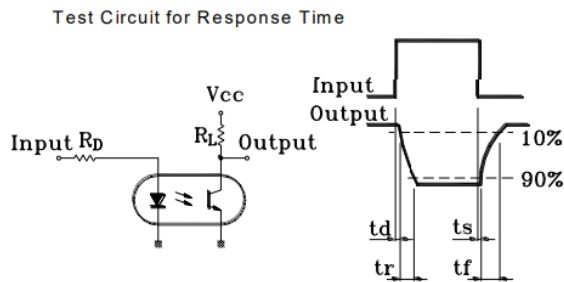


Figure 11. Frequency response.



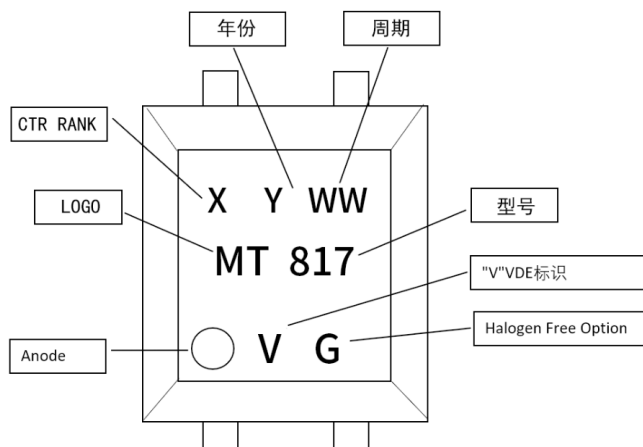
Naming Rule

MT-817-X-Y-WW-V-G

- MT---Logo
- 817---Part Number
- (X)---Representative: ABCD
- (Y)---Product Year
- (WW)---product lifecycle
- (V)---VDE
- (G)---halogen-free

Example:MT-817-X-Y-WW-V-G

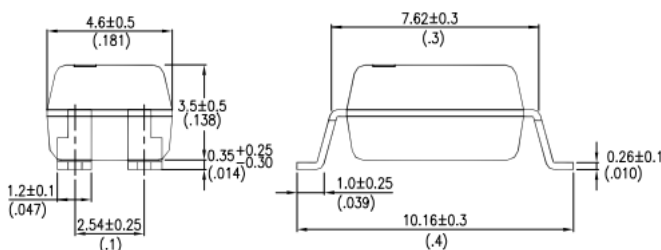
Marking



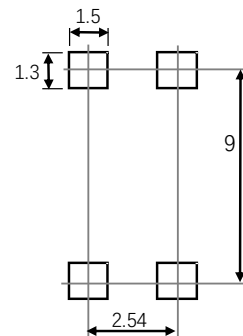
Package Dimensions

- “S”Type

Surface mount

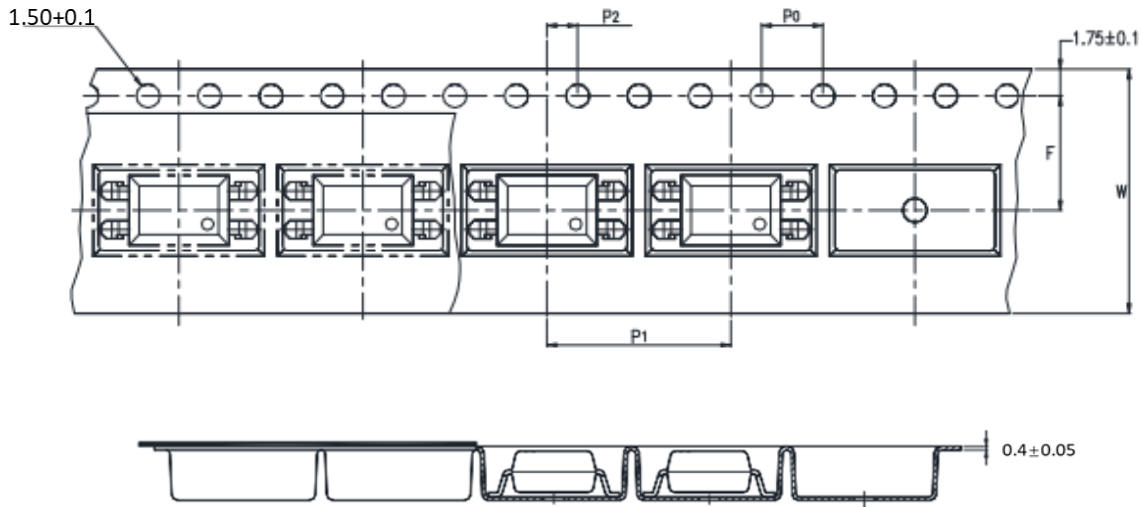


Surface mount (Footprint Dimensions)

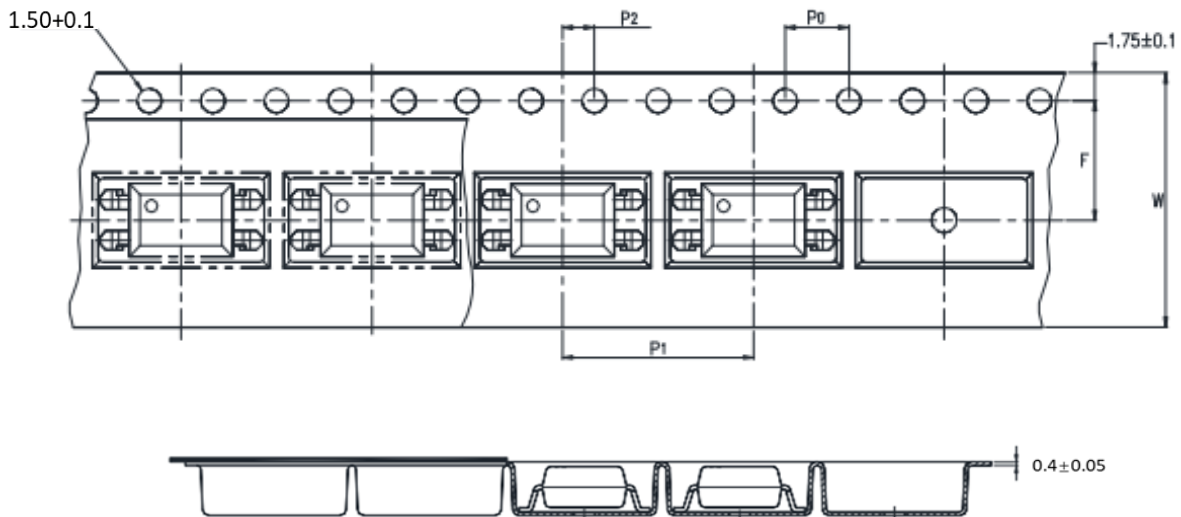


Carrier Tape Specifications

- “TA” Tape (1000 units per reel)



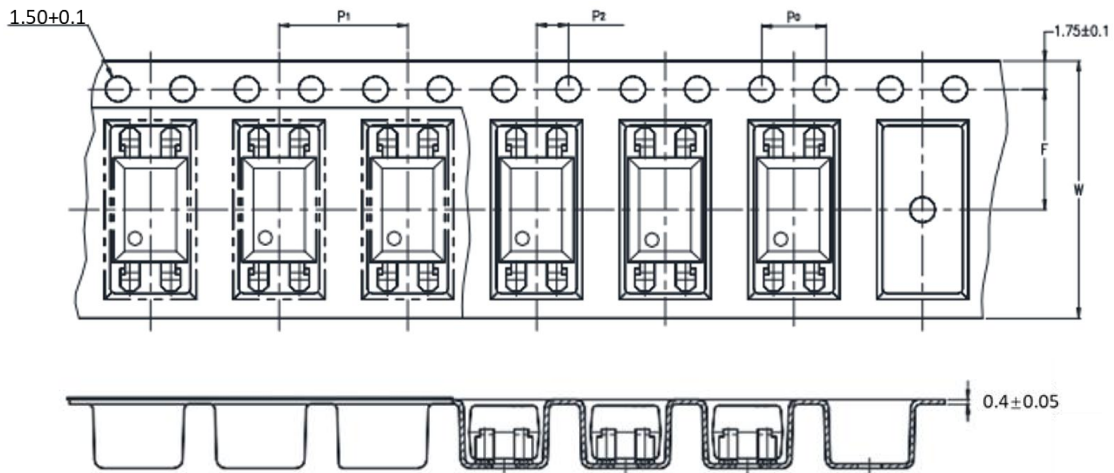
- “TA1” Tape (1000 units per reel)



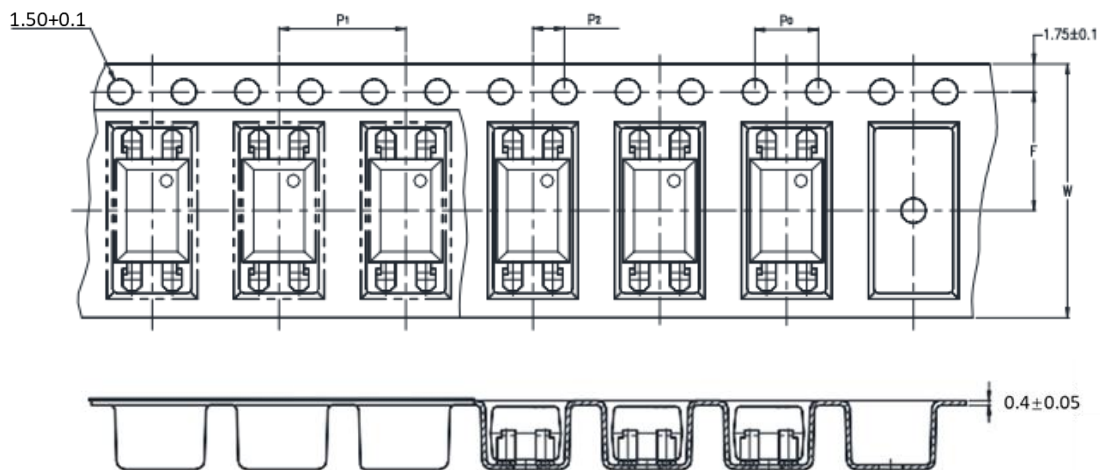
Symbol	Description	Dimensions in mm (inches)
W	Tape wide	16 ± 0.3 (0.63)
P_0	Pitch of sprocket holes	4 ± 0.1 (0.15)
F	Distance of compartment	7.5 ± 0.1 (0.295)
P_2		2 ± 0.1 (0.079)
P_1	Distance of compartment to compartment	12 ± 0.1 (0.472)

Carrier Tape Specifications

- “TP” Tape (2000 units per reel)

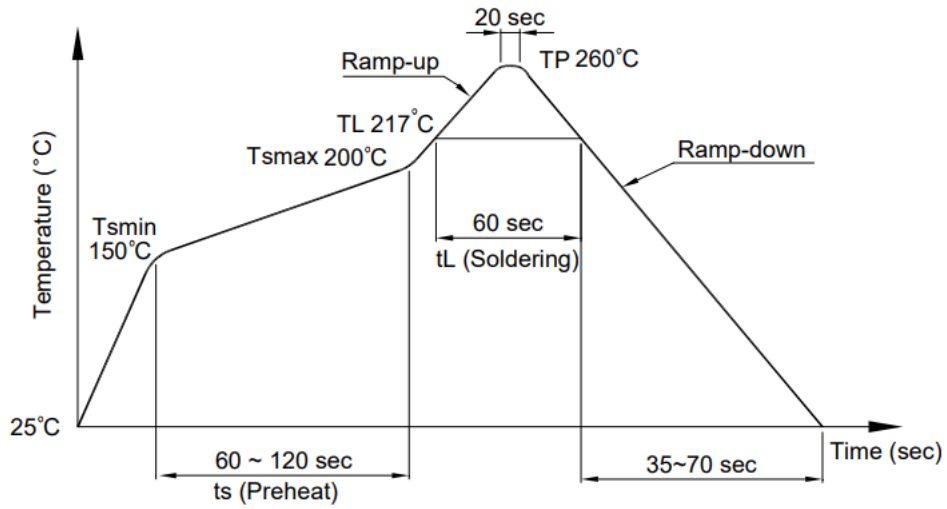


- “TP1” Tape (2000 units per reel)



Symbol	Description	Dimensions in mm (inches)
W	Tape wide	16 ± 0.3 (0.63)
P_0	Pitch of sprocket holes	4 ± 0.1 (0.15)
F	Distance of compartment	7.5 ± 0.1 (0.295)
P_2		2 ± 0.1 (0.079)
P_1	Distance of compartment to compartment	8 ± 0.1 (0.315)

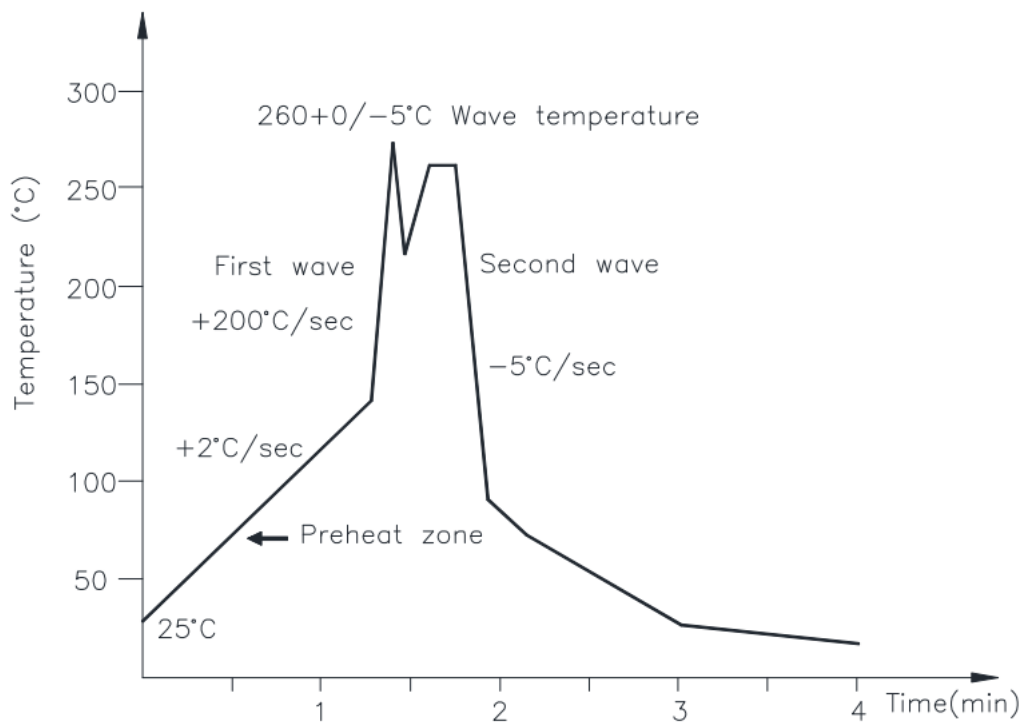
Solder Reflow Temperature Profile (JEDEC-STD-020C compliant)



Profile Item	Conditions
Preheat	
- Temperature Min (T _{smin})	150°C
- Temperature Max (T _{smax})	200°C
- Time (min to max) (ts)	90±30 sec
Soldering zone	
- Temperature (T _L)	217°C
- Time (t _L)	60 sec
Peak Temperature (T _P)	260°C
Ramp-up rate	3°C / sec max
Ramp down rate	3~6°C / sec

One time soldering reflow is recommended within the condition of temperature and time profile shown
Do not solder more than three times

Wave Soldering (JEDEC22A111 compliant)



One time soldering is recommended within the condition of temperature

Temperature: 260+0/-5°C

Time: 10 sec

Preheat temperature: 25 to 140°C

Preheat time: 30 to 80 sec