

客户 (Customer) : _____

承认书 Approval Sheet

谨致执事者：兹提供敝公司之有关详细规格及图面数据，敬请给予办理试认定手续。
同时敬请送返一份附有贵公司签认之测试认定后之样品承认书。

We are pleased in sending you herewith on specification and drawings for your approval.
Please return to us one copy "Approval sheet" with your approved signature.

型号 (Model No.) : AM816 Series

发文日期 (Issue Date) : 2022/09/14 承认日期 (Approved Date) : _____

Checking signature of Amicc

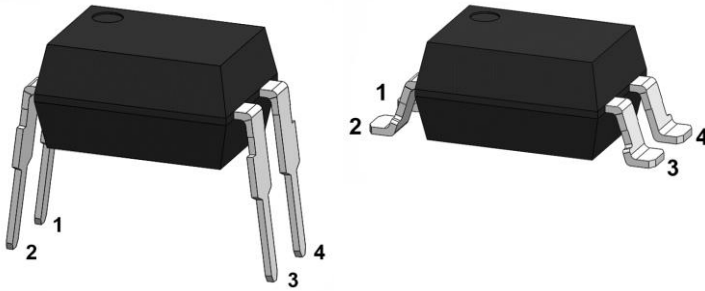
Designer	Checker	Approver
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Approval signature of customer

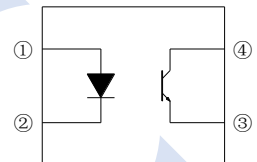
Designer	Checker	Approver

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4 PIN DIP PHOTOTRANSISTOR PHOTOCOUPLER AM816 Series



Pin and Internal Connection Diagram



1. Anode
2. Cathode
3. Emitter
4. Collector

Features

- Current transfer ratio
(CTR: 50~600% at $I_F = 5\text{mA}$, $V_{CE} = 5\text{V}$)
(CTR: 63~320% at $I_F = 10\text{mA}$, $V_{CE} = 5\text{V}$)
- High input-output isolation voltage ($V_{iso} = 5,000\text{Vrms}$)
- Creepage distance $> 7.62\text{mm}$
- Operating temperature up to $+110^\circ\text{C}$

Description

The AM816 series of devices each consist of an infrared emitting diodes, optically coupled to a phototransistor detector.

They are packaged in a 4-pin DIP package and two forms (DIP, SMD).

Applications

- Programmable controllers
- Home appliances, such as air conditioners, fans, water heaters, etc.
- Industrial control, measuring instruments
- Switching power supply, smart meter

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 _D	70	mW
Output	Power Dissipation	P _C	150	mW
	Collector Current	I _C	50	mA
	Collector-Emitter Voltage	V _{CEO}	80	V
	Emitter-Collector Voltage	V _{ECO}	7	V
Total Power Dissipation		P _{TOT}	200	mW
Isolation Voltage* ¹		V _{ISO}	5000	Vrms
Operating Temperature		T _{OPR}	-55 to 110	°C
Storage Temperature		T _{STG}	-55 to 125	°C
Soldering Temperature* ²		T _{SOL}	260	°C

Notes:

*1. 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.

*2. For 10 Seconds

Electro-Optical Characteristics (Ta=25°C)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Test Condition
Input	Forward Voltage	V_F	-	1.2	1.4	V	$I_F = 20\text{mA}$
	Reverse Current	I_R	-	-	10	μA	$V_R = 4\text{V}$
	Terminal Capacitance	C_t	-	30	250	pF	$V = 0, f = 1\text{KHz}$
Output	Collector Dark Current	I_{CEO}	-	-	100	nA	$V_{CE} = 20\text{V}, I_F = 0$
	Collector-Emitter Breakdown Voltage	BV_{CEO}	80	-	-	V	$I_C = 0.1\text{mA}$
	Emitter-Collector Breakdown Voltage	BV_{ECO}	7	-	-	V	$I_E = 0.1\text{mA}$
Transfer Characteristics	AM816	CTR*	50	-	600	%	$I_F = 5\text{mA}, V_{CE} = 5\text{V}$
	AM816A		80	-	160		
	AM816B		130	-	260		
	AM816C		200	-	400		
	AM816D		300	-	600		
	AM816X		100	-	200		
	AM816Y		150	-	300		$I_F = 10\text{mA}, V_{CE} = 5\text{V}$
	AM816I		63	-	125		
	AM816J		100	-	200		
	AM816K		160	-	320		$I_F = 1\text{mA}, V_{CE} = 5\text{V}$
	AM816L		22	-	-		
	AM816J		34	-	-		
	AM816K		56	-	-		
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	-	0.1	0.2	V	$I_F = 20\text{mA}, I_C = 1\text{mA}$	
Isolation Resistance	R_{IO}	5×10^{10}	-	-	Ω	DC 500V, 40~60% R.H.	
Floating Capacitance	C_{IO}	-	0.6	1.0	pF	$V_{IO} = 0, f = 1\text{MHz}$	
Cut-off Frequency	f_c	-	80	-	KHz	$V_{CE} = 5\text{V}, I_C = 2\text{mA}$ $R_L = 100\Omega, -3\text{dB}$	
Rise time	t_r	-	4	18	μs	$V_{CE} = 2\text{V}, I_C = 2\text{mA},$ $R_L = 100\Omega$	
Fall time	t_f	-	3	18	μs		

* $CTR = I_C / I_F * 100\%$

Typical Electro-Optical Characteristics Curves

Fig.1 - Forward Current vs Forward Voltage

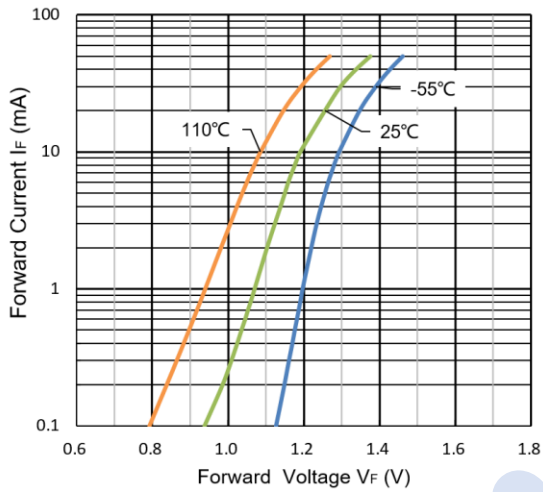


Fig.2 - Relative Current Transfer Ratio vs Forward Current

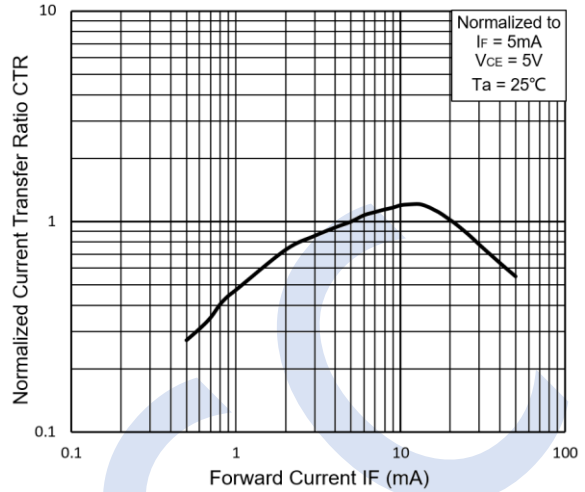


Fig.3 - Relative Current Transfer Ratio vs Ambient Temperature

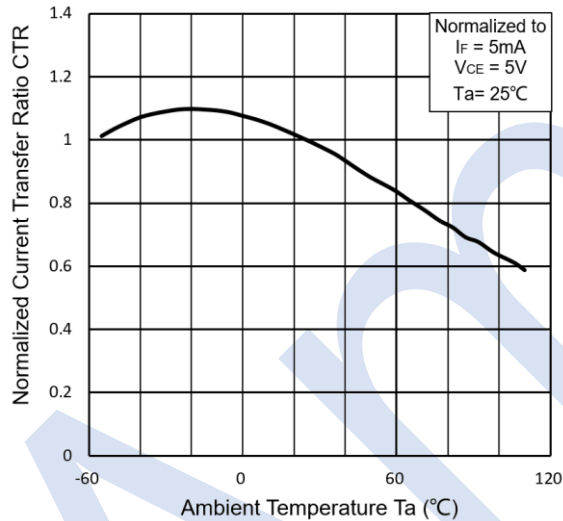


Fig.4 - Collector Dark Current vs Ambient Temperature

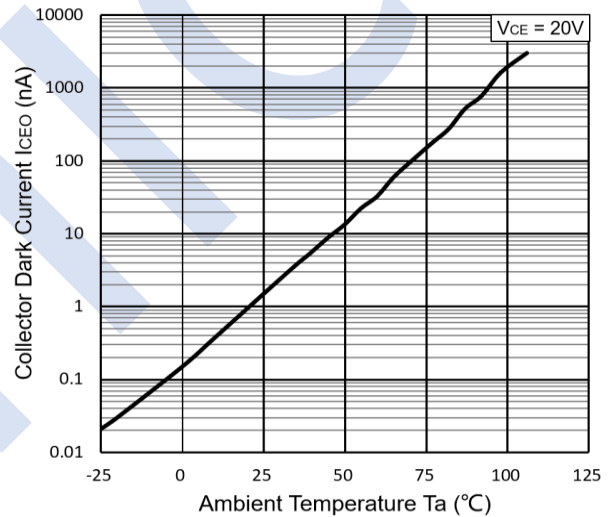


Fig.5 - Collector-Emitter Voltage vs Collector Current

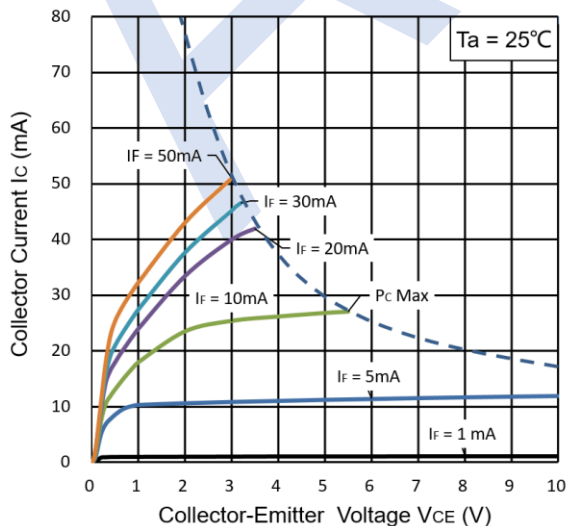


Fig.6 - Switching Time vs Load Resistance

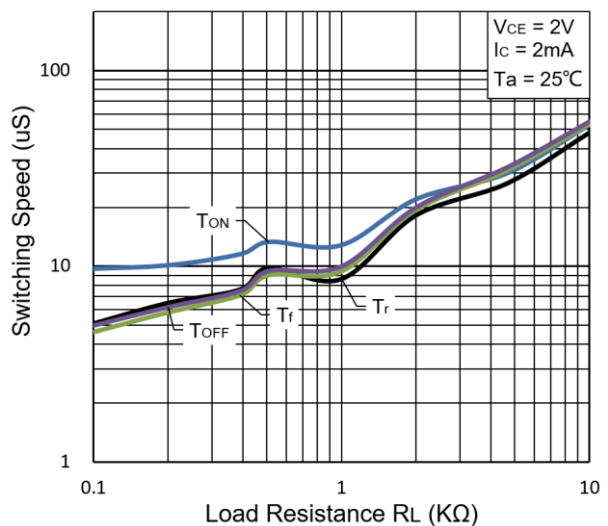
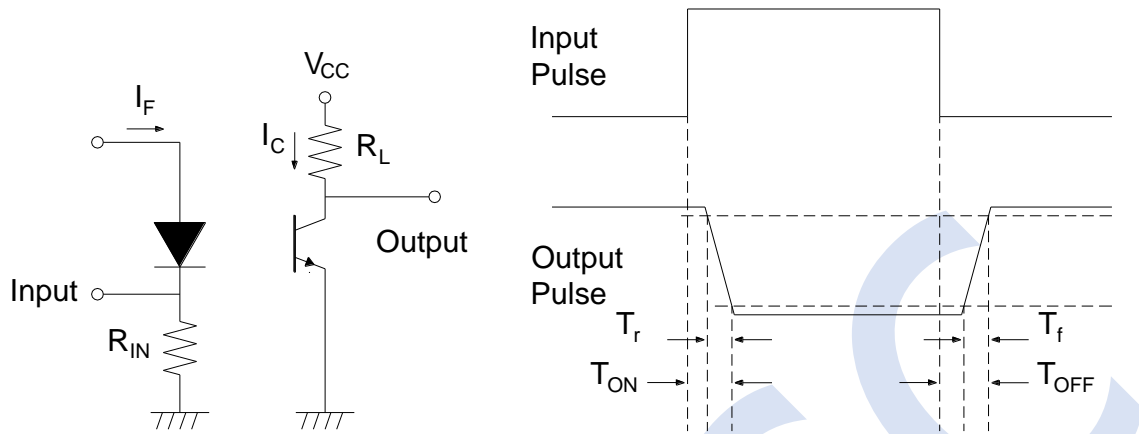


Fig.7 - Switching Time Test Circuit & Waveforms



Order Information

Part Number

AM816X(Y)(Z)-FVG

Note

- X = Lead form option
 No suffix = Dual-in-Line package
 S = Surface mounting package
- Y = CTR Rank
 Please refer to the CTR table on Page P4
- Z = TAPING TYPE
 T1, T2, or none)
- F = Lead frame option
 F = Iron, C = copper)
- V = VDE order option
- G = Halogen free option

Option	Description	Packing quantity		
None	Dual-in-Line package	100 units per tube	50 tubes/inner box	10 inner boxes/outer box
S	Surface mounting package	2000 units per reel	4 reels/inner box	5 inner boxes/outer box

Device Marking

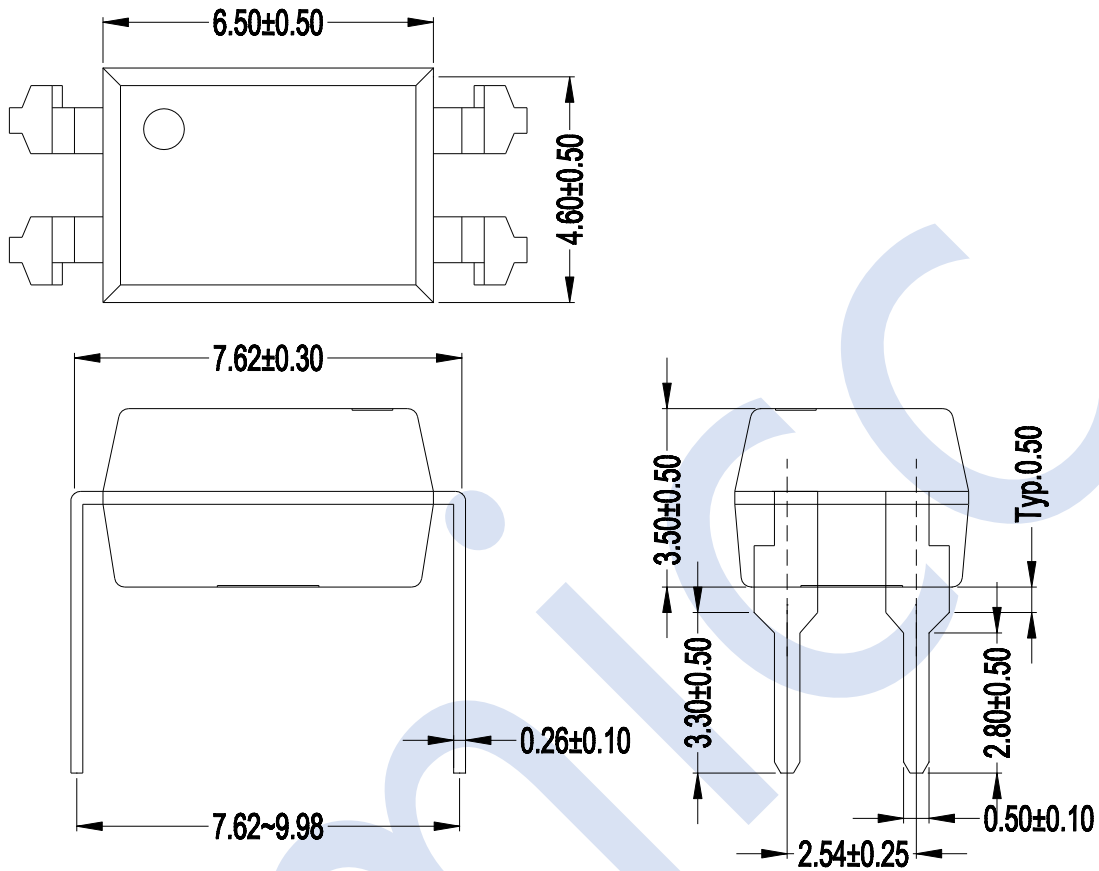


Notes

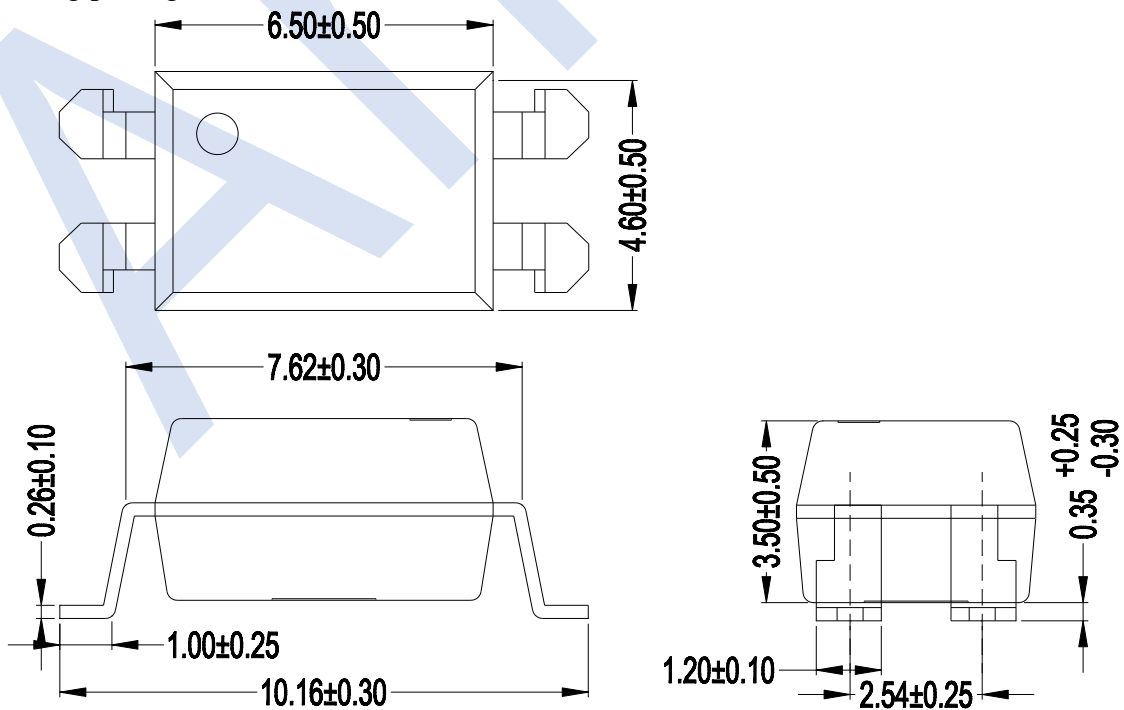
- AM denotes Amicc
- 816 denotes Device Number
- R denotes CTR Rank
- Y denotes 1 digit Year code
- WW denotes 2 digit Week code
- V denotes VDE (optional)
- G denotes Halogen free

Package Dimension (Dimensions in mm)

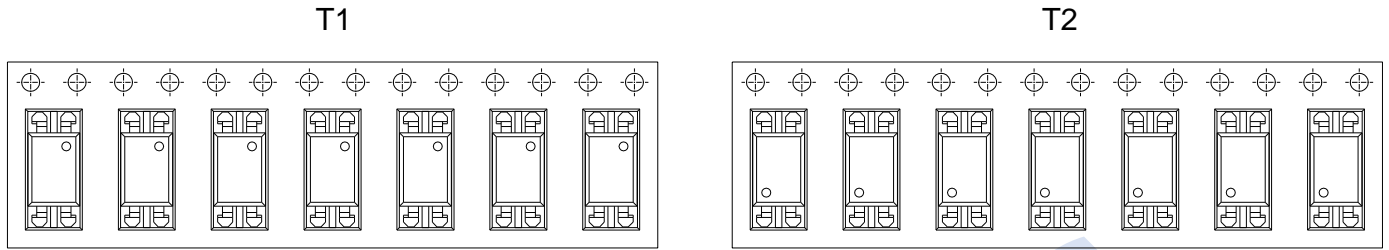
Dual-in-Line package



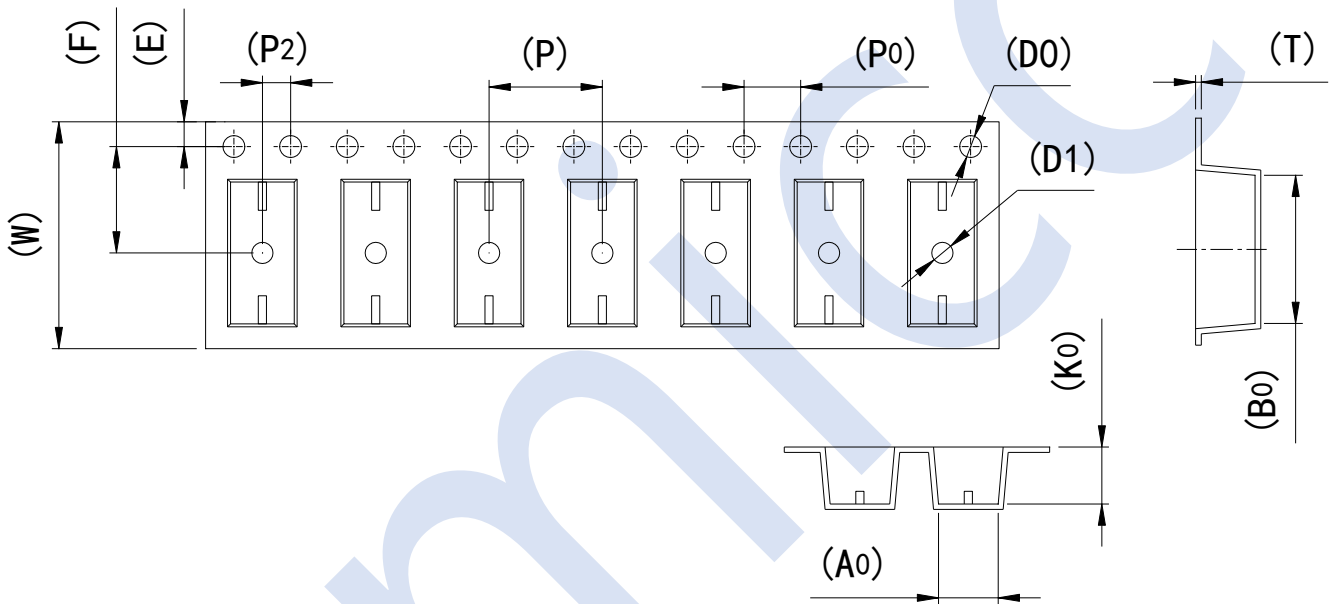
Surface mounting package



Tape & Reel Packing Specifications



Tape dimensions



Dimension No.	A0	B0	D0	D1	E	F
mm	4.70±0.10	10.45±0.10	1.55±0.10	1.50±0.10	1.75±0.10	7.50±0.10
Dimension No.	P0	P1	P2	T	W	K0
mm	4.00±0.10	8.00±0.10	2.00±0.10	0.35±0.10	16.00±0.30	4.10±0.10

Label Explanation

Amicc AMICC OPTO-ELECTRONICS
TECHNOLOGY CO.,LTD

P/N: **AR0C000001**



TYPE: **AM816S(C)(T1)-FG**

CAT: **C**

REF: **T1**

QTY: **2000 PCS**

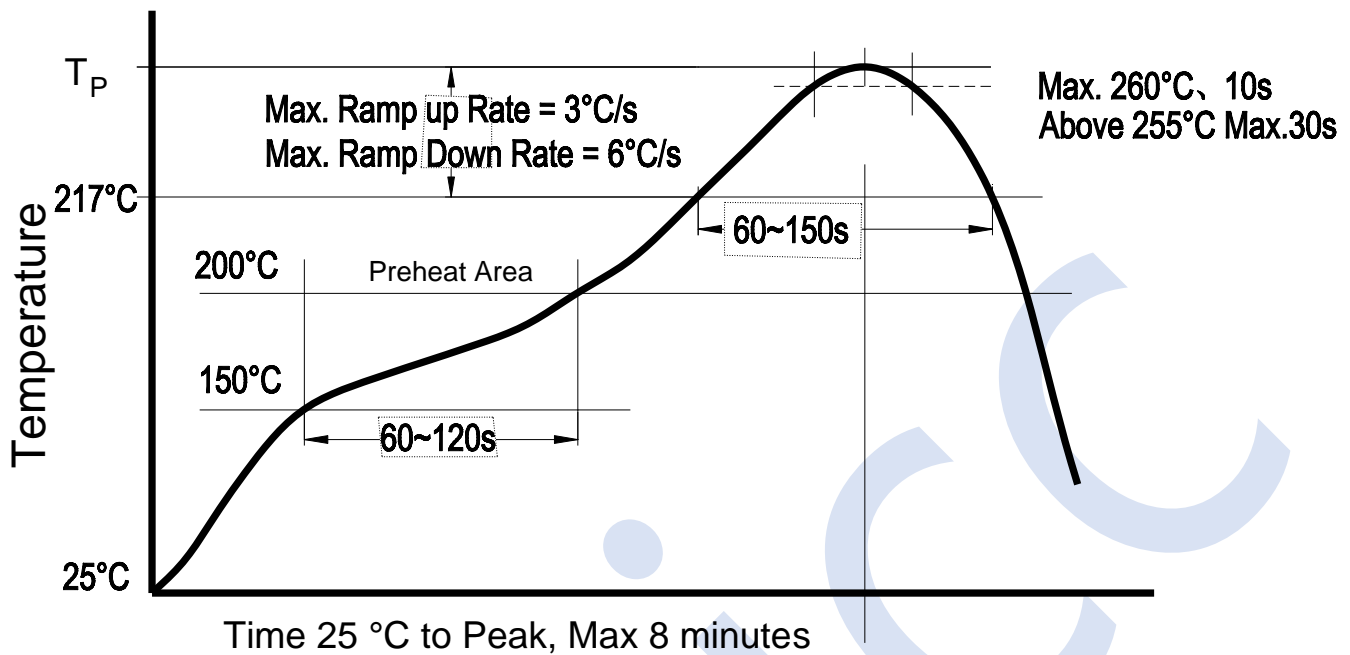
LOT: **G2082401D207C209**



- ◆ P/N: Product Number
- ◆ TYPE: Part No.
- ◆ CAT: BIN Number
- ◆ REF: Packaging Number
- ◆ QTY: Packing Quantity
- ◆ LOT: Lot Number

Amicc

Recommended soldering conditions of reflow



Soldering times Max.: 3 times

DISCLAIMER

1. Above specification may be changed without notice. Amicc will reserve authority on material change for above specification.
2. The graphs shown in this datasheet are representing typical data only and do not show guaranteed values.
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