

FMOSL3467

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-2.8A, -20V P-Channel High Density Trench MOSFET

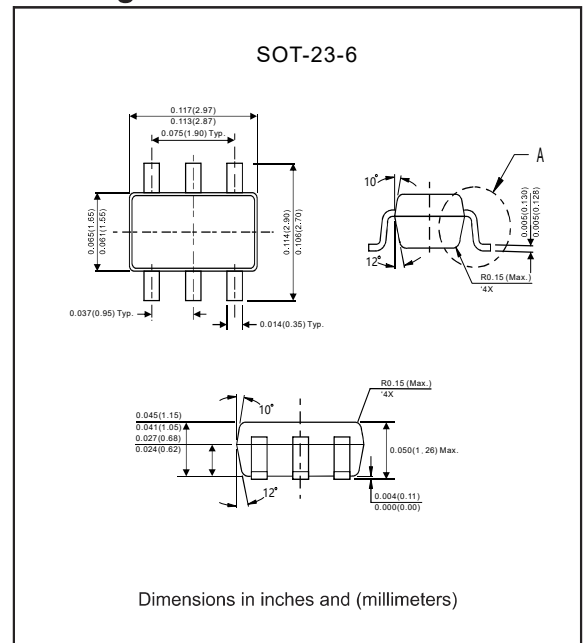
Features

- $-V_{DS} = 20V$, $-I_D = 2.8A$.
- $R_{DS(ON)} < 110m\Omega$, @ $-V_{DS} = 4.5V$, $-I_D = 2.8A$.
- $R_{DS(ON)} < 140m\Omega$, @ $-V_{DS} = 2.5V$, $-I_D = 2.0A$.
- Super high dense cell trench design for low $R_{DS(ON)}$.
- Rugged and reliable.
- Lead-free free product is acquired.
- Suffix "-H" indicates Halogen-free part, ex.FMOSL3467-H.

Mechanical data

- Epoxy : UL94-V0 rated flame retardant.
- Case : Molded plastic, SOT-23-6.
- Terminals : Solder plated, solderable per MIL-STD750, Method 2026.
- Polarity : See Diagram.
- Mounting Position : Any.
- Weight : Approximated 0.006 gram.

Package outline



Maximum Ratings (At $T_A = 25^\circ C$ Unless otherwise noted)

Parameter	Symbol	Rating	Unit
Drain source voltage	$-V_{DS}$	20	V
Gate source voltage	V_{GS}	± 8	V
Drain current continuous (Note 1)	$-I_D$	2.8	A
Drain current - pulsed (Note 2)	$-I_{DM}$	8	A
Drain source diode forward current (Note 1)	$-I_S$	0.75	A
Power dissipation (Note 1)	P_D	1.6	W
Operating junction temperature	T_J	+150	$^\circ C$
Storage temperature range	T_{STG}	-55 to 150	$^\circ C$
Thermal resistance junction to ambient (Note 1)	$R_{\theta JA}$	82	$^\circ C/W$

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Electrical Characteristics (At $T_A = 25^\circ\text{C}$ unless otherwise noted)

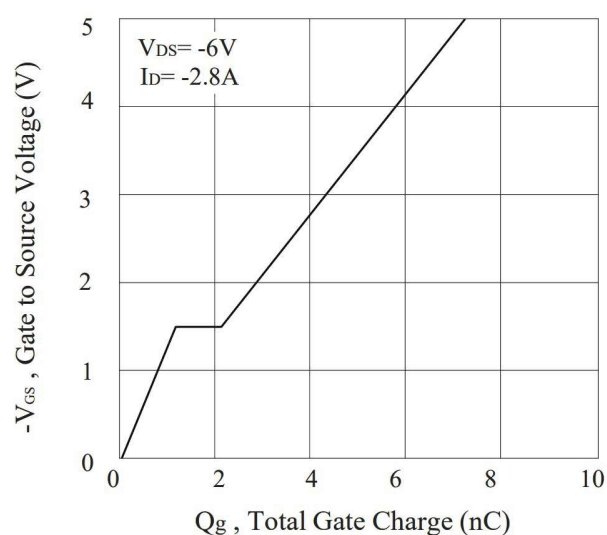
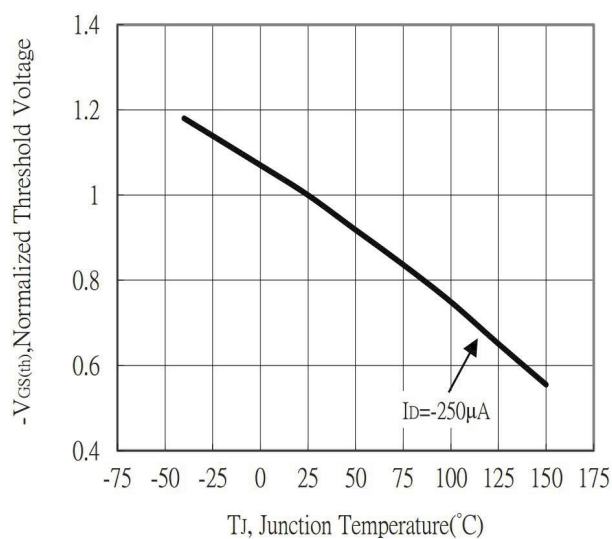
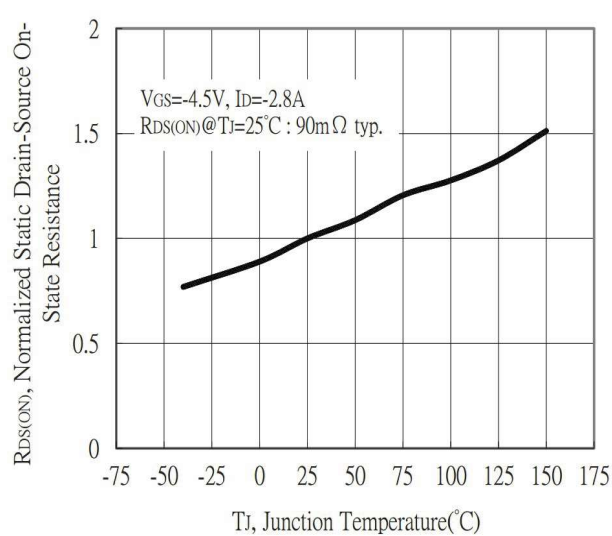
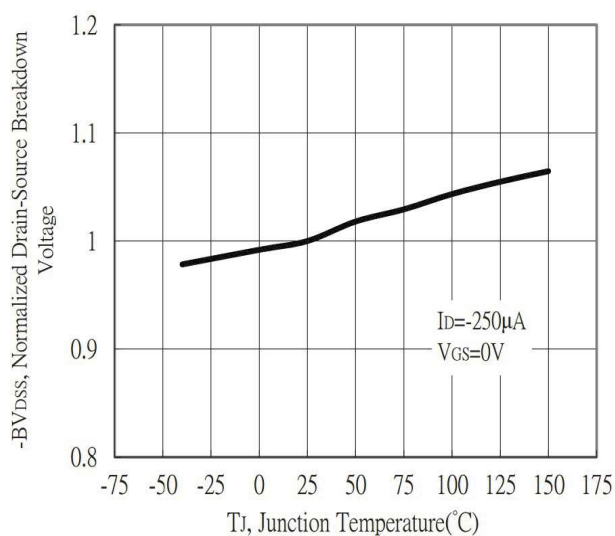
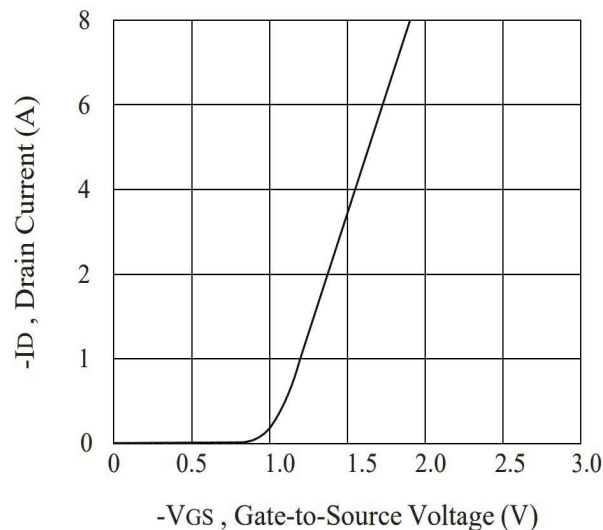
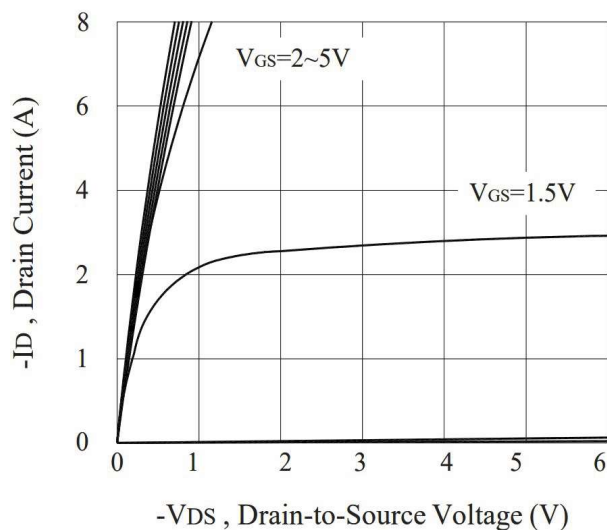
Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
Static Parameters						
Drain - Source Breakdown Voltage	$V_{GS} = 0, -I_D = 250\mu A$	$-BV_{DSS}$	20			V
Drain - Source Leakage Current	$-V_{DS} = 20V, V_{GS} = 0V$	$-I_{DSS}$			1	μA
Gate - Source Leakage Current	$V_{GS} = \pm 8V, V_{DS} = 0V$	I_{GSS}			± 100	nA
Gate Threshold Voltage (Note 3)	$V_{GS} = V_{DS}, -I_D = 250\mu A$	$-V_{GS(th)}$	0.45	0.65	0.95	V
Static Drain - Source On - Resistance (Note 3)	$-V_{GS} = 4.5V, -I_D = 2.8A$	$R_{DS(on)}$		90	110	m Ω
	$-V_{GS} = 2.5V, -I_D = 2.0A$			110	140	
Dynamic Parameters (Note 4)						
Input Capacitance	$-V_{DS} = 6V, V_{GS} = 0V, f = 1MHz$	C_{iss}		664		pF
Output Capacitance		C_{oss}		154		
Reverse Transfer Capacitance		C_{rss}		129		
Switching Parameters (Note 4)						
Total Gate Charge	$-V_{DS} = 6V, -V_{GS} = 4.5V, -I_D = 2.8A$	Q_g		6.72		nC
Gate - Source Charge		Q_{gs}		1.12		
Gate - Drain Charge		Q_{gd}		1.04		
Turn - On Delay Charge	$-V_{DS} = 6V, -V_{GS} = 4.5V, -I_D = 1A$ $R_G = 6\Omega, R_L = 6\Omega$	$t_{d(on)}$		8.6		ns
Rise Time		t_r		3.0		
Turn - Off Delay Time		$t_{d(off)}$		39.2		
Fall Time		t_f		11.2		

Note:

1. Surface mounted on FR4 board, $t \leq 10\text{sec}$.
2. Pulse width limited by maximum junction temperature.
3. Pulse Test Pulse width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production testing.

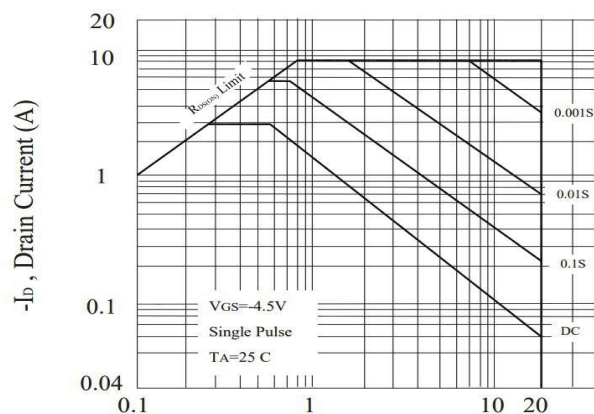
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Rating and Characteristic Curves

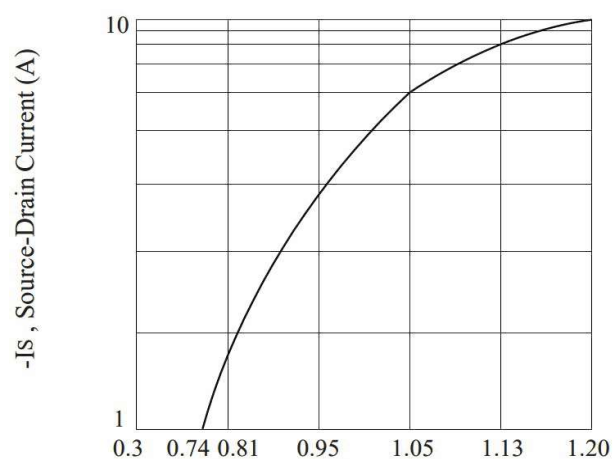


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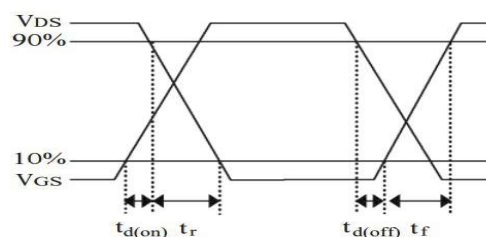
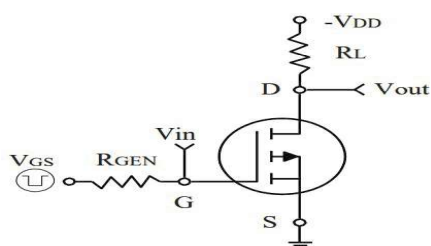
Rating and Characteristic Curves



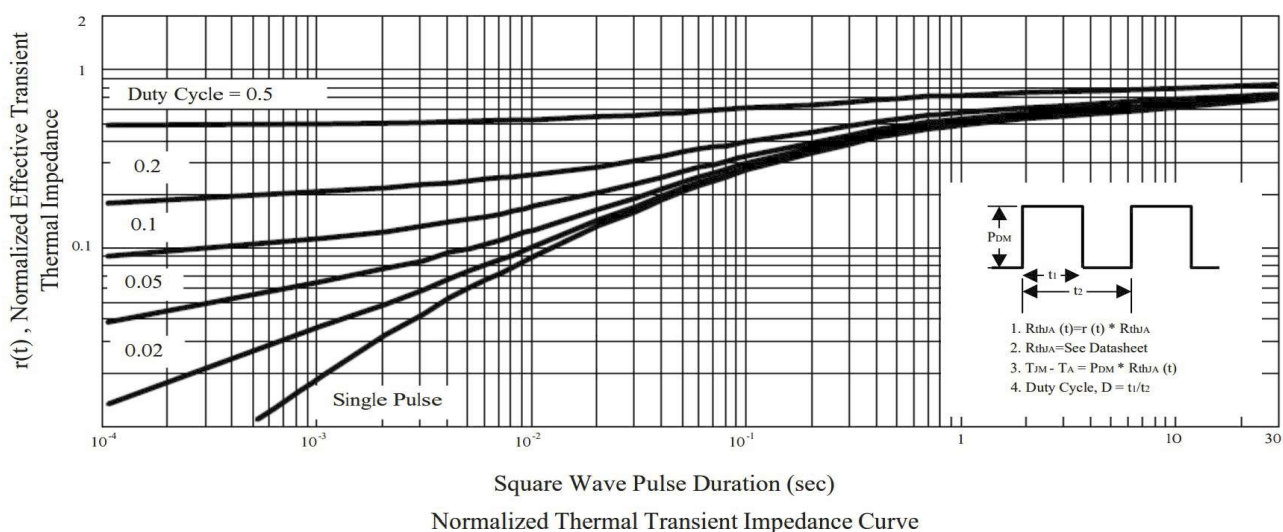
-VDS, Drain-Source Voltage (V)
Maximum Safe Operating Area



-VSD, Body Diode Forward Voltage (V)

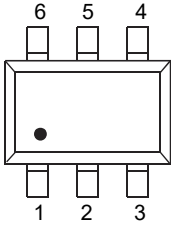
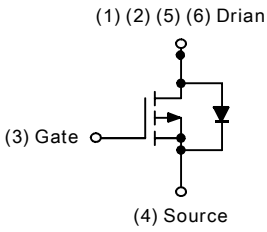


Switching Test Circuit and Switching Waveforms

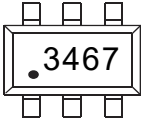


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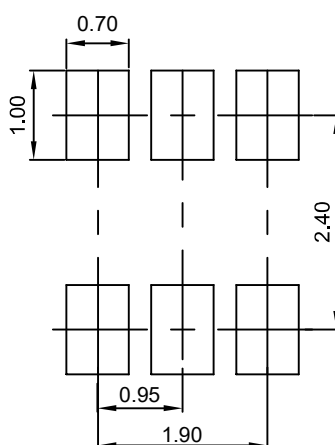
Pinning information

Simplified outline	Symbol
	

Marking

Type number	Marking code
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Suggested solder pad layout

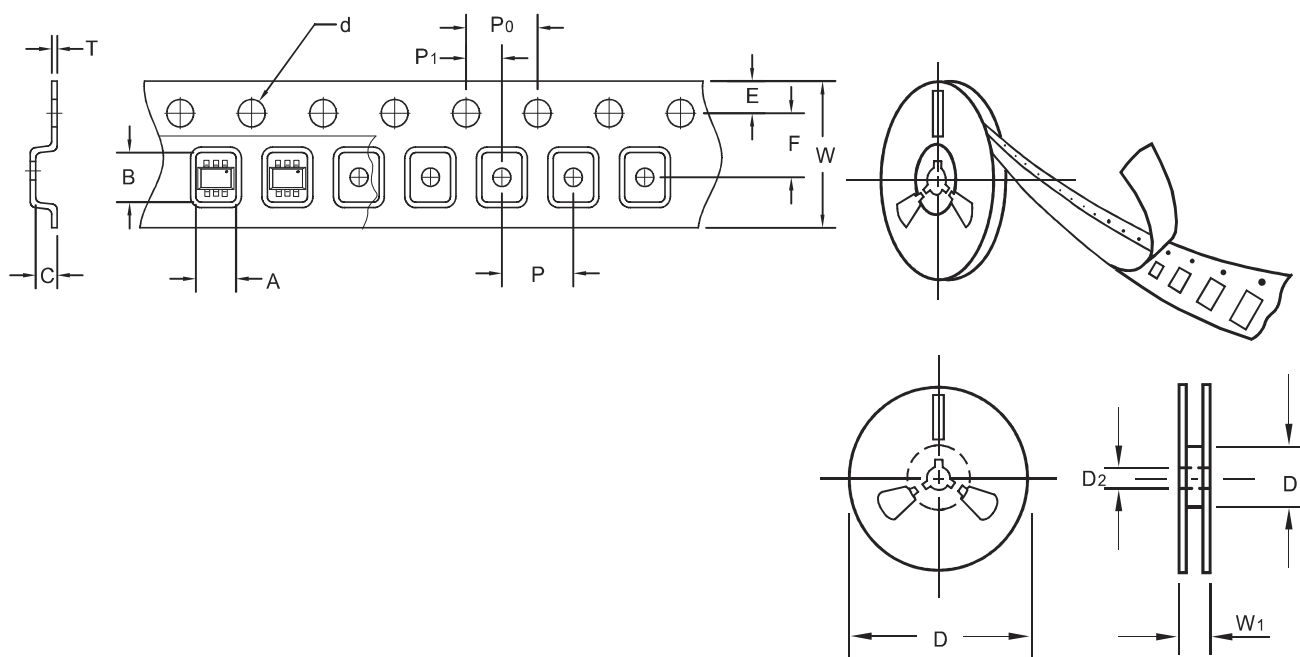


Note:

1. Controlling dimension: in millimeters.
2. General tolerance: ± 0.05 mm.
3. The pad layout is for reference purposes only.

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Packing information



unit:mm

Item	Symbol	Tolerance	SOT-23-6
Carrier width	A	0.2	3.10
Carrier length	B	0.2	2.70
Carrier depth	C	0.1	1.20
Sprocket hole	d	0.1	1.50
13" Reel outside diameter	D	2.0	-
13" Reel inner diameter	D ₁	min	-
7" Reel outside diameter	D	2.0	178.00
7" Reel inner diameter	D ₁	min	62.00
Feed hole diameter	D ₂	0.5	13.00
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.1	3.50
Punch hole pitch	P	0.1	4.00
Sprocket hole pitch	P ₀	0.1	4.00
Embossment center	P ₁	0.1	2.00
Overall tape thickness	T	0.1	0.20
Tape width	W	0.3	8.00
Reel width	W ₁	1.0	11.40

Note: Devices are packed in accordance with EIA standard RS-481-A and specifications listed above.

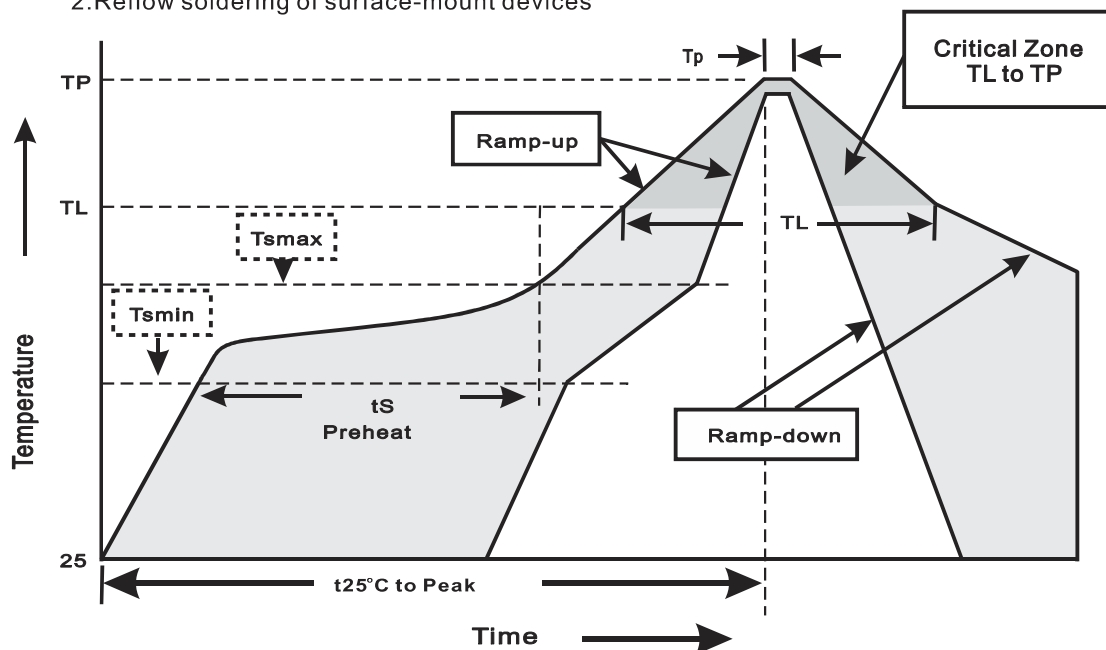
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Reel packing

PACKAGE	REEL SIZE	REEL (pcs)	COMPONENT SPACING (m/m)	BOX (pcs)	INNER BOX (m/m)	REEL DIA. (m/m)	CARTON SIZE (m/m)	CARTON (pcs)	APPROX. GROSS WEIGHT (kg)
SOT-23-6	7"	3,000	4.0	30,000	210*208*203	178	440*435*22.7	180,000	9.5

Suggested thermal profiles for soldering processes

- 1.Storage environment: Temperature=5°C~40°C Humidity=55%±25%
- 2.Reflow soldering of surface-mount devices



3.Reflow soldering

Profile Feature	Soldering Condition
Average ramp-up rate(T_L to T_P)	<3°C/sec
Preheat -Temperature Min(T_{smin}) -Temperature Max(T_{smax}) -Time(min to max)(t_s)	150°C 200°C 60~120sec
T_{smax} to T_L -Ramp-upRate	<3°C/sec
Time maintained above: -Temperature(T_L) -Time(t_L)	217°C 60~260sec
Peak Temperature(T_P)	255°C-0/+5°C
Time within 5°C of actual Peak Temperature(t_P)	10~30sec
Ramp-down Rate	<6°C/sec
Time 25°C to Peak Temperature	<6minutes