

MITSUBISHI ELECTRIC CORPORATION

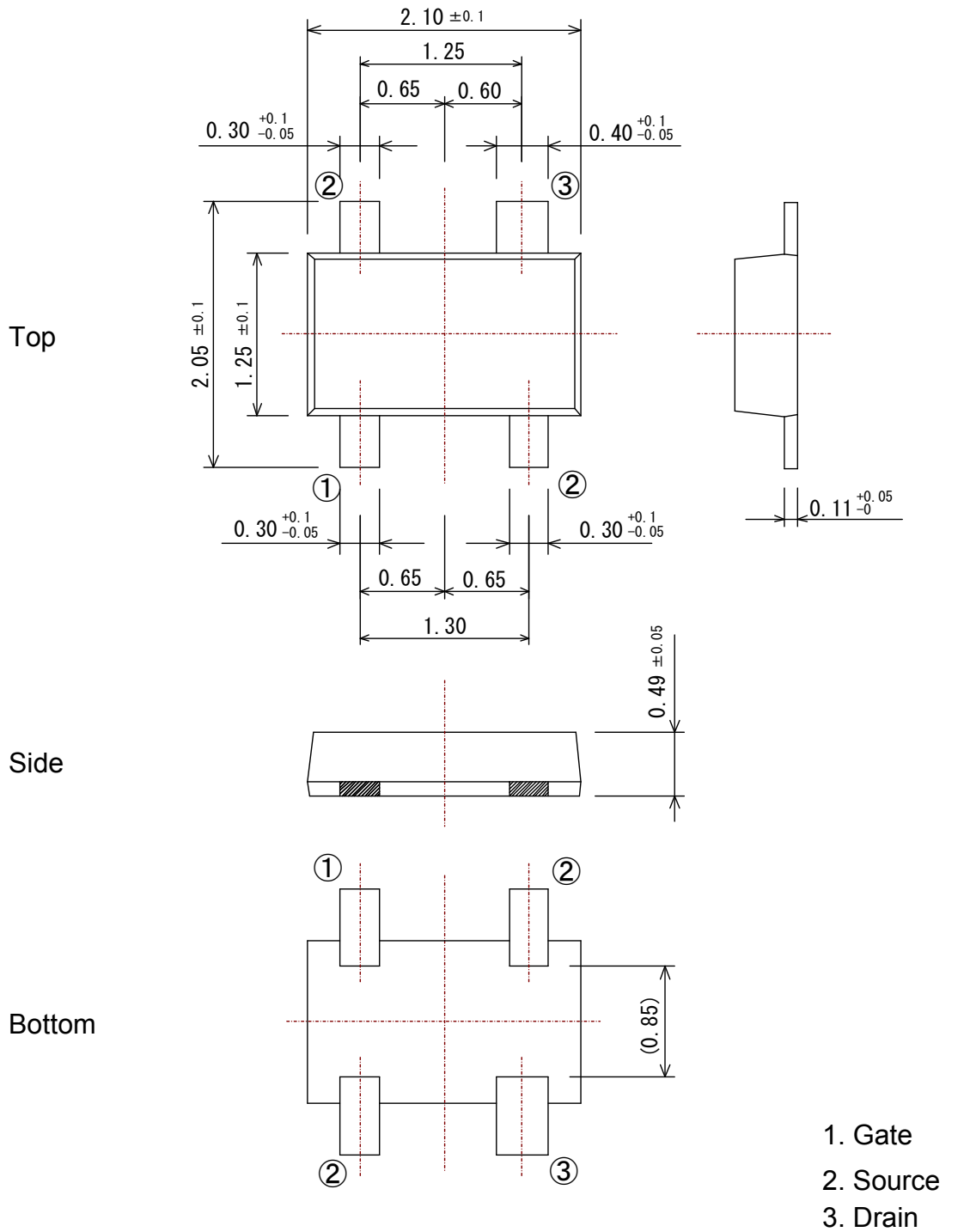
Technical Note	Prepared by	Y.Miyamoto	R A E V	T.Hosomi	B	<i>J. Ishida</i>	
	Checked by	K.Miyawaki		T.Ishida		_____	
	Approved by	M.Kohno		K.Maemura		<i>K. Maemura</i>	
	DATE	'03-11/12		'08-4/28		<i>'08-6/12</i>	

Recommended assemble method for MITSUBISHI's 4-pin flat lead packaged device

Contents

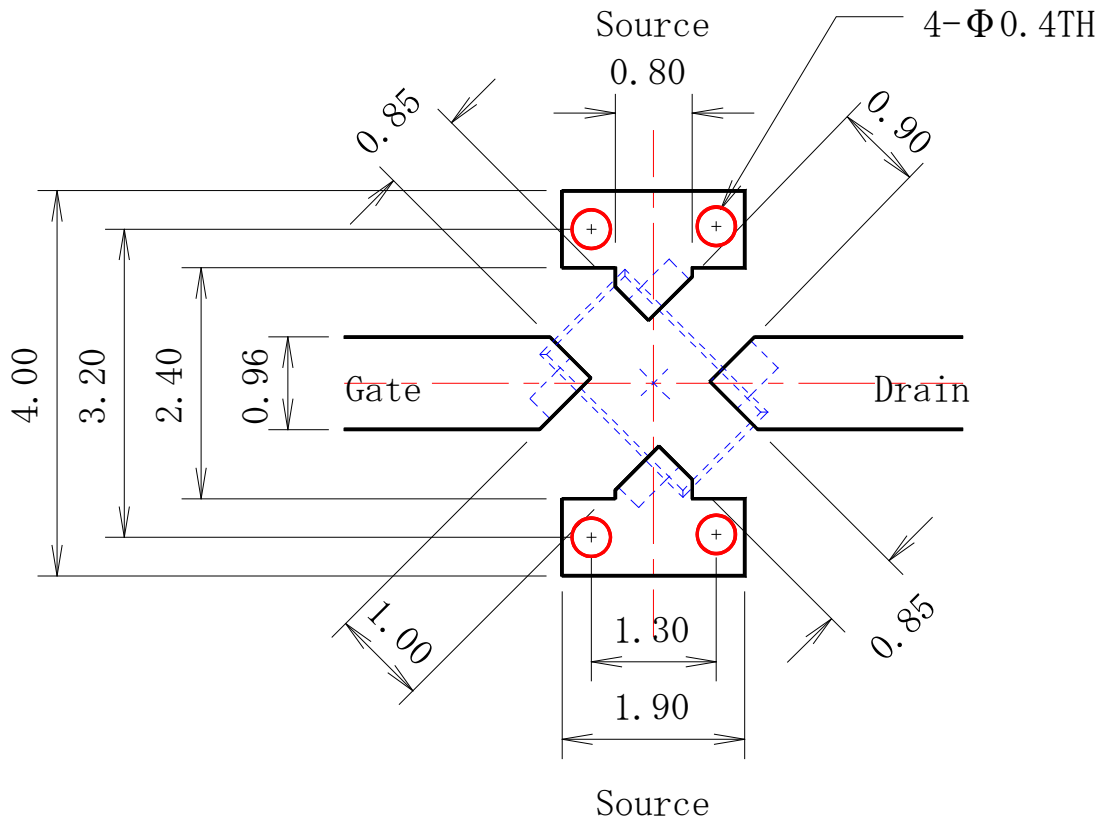
1. Outline Drawing
2. Recommended foot pattern and metal mask pattern
3. Recommended soldering methods
4. Recommended rework process
5. Notice

1. Outline drawing (MGF493x series)



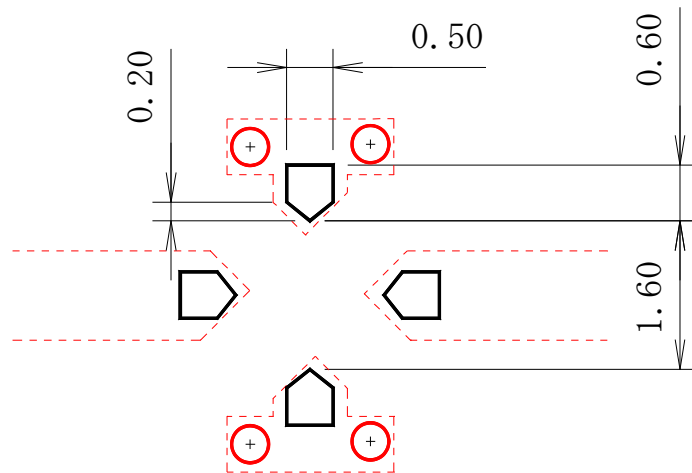
(Unit : mm)

2. Recommended foot pattern and metal mask pattern



(Unit: mm)

Fig.1 Recommended foot pattern



Thickness=0.13mm
(Unit: mm)

Fig.2 Recommended metal mask pattern

3. Recommended soldering methods

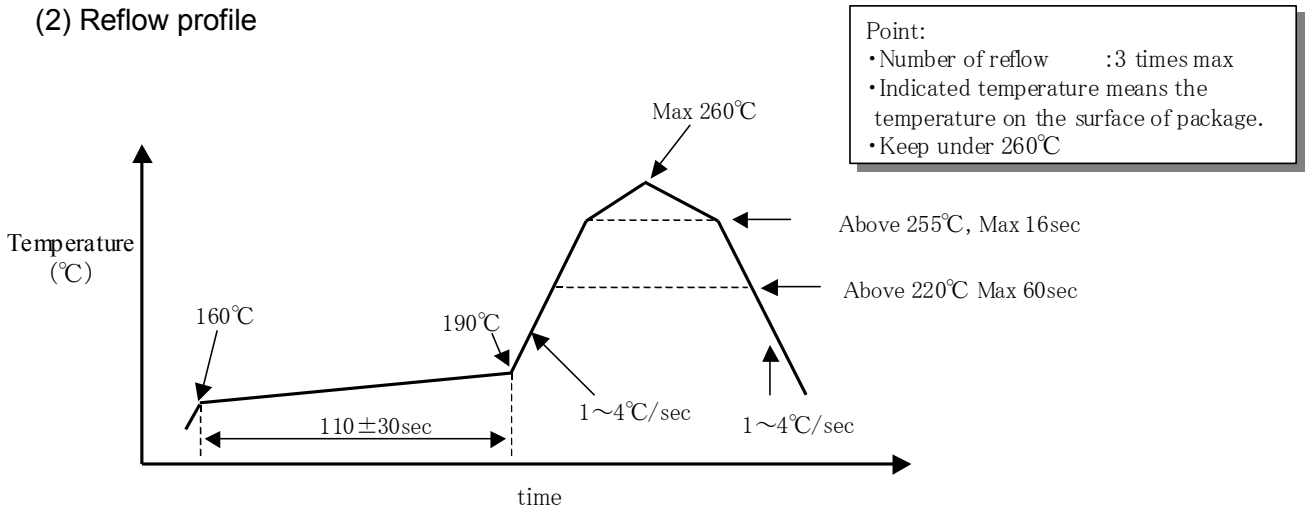
3-1 Recommended conditions of IR reflow

Lead free soldering

(1) Solder type

Alloy : Sn/3.0Ag/0.5Cu
 Content of halide : under 0.1wt%

(2) Reflow profile



3-2 Recommended conditions using a soldering iron

Temperature at a lead terminal : 380°C max. (350°C is recommended)
 Time : 3sec. Max. / Each lead terminal

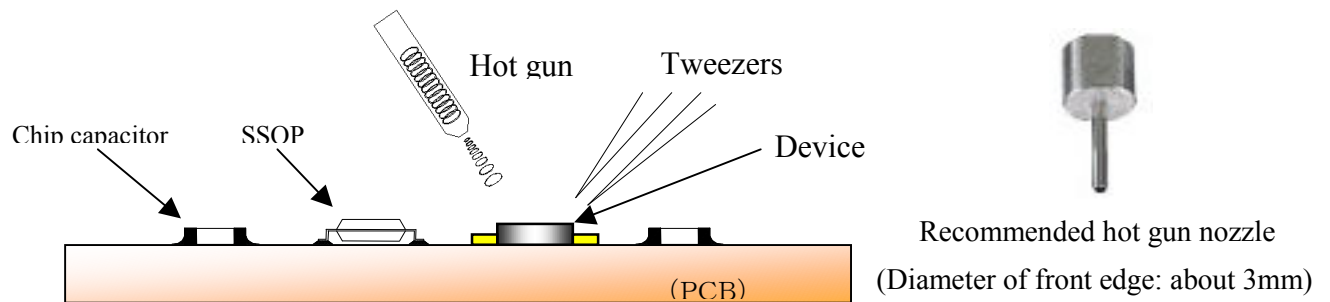
Please solder with front edge of iron without any contacts to the package	Don't push a lead terminal without back supports	Don't push the head of package	Don't touch the head of package when soldering

Note: Please connect the front edge of soldering iron to the ground and make sure that operators are connected to the ground to protect the devices from ESD.

4. Recommended rework process

4-1 Recommended condition using a Hot-Gun

Rework method using a Hot Gun (Spot Heater) is shown in following figure. Please control the temperature, position and airflow to keep the package surface.



Recommended temperature and time is as follows

Temperature at package surface 380°C max.

Time 5sec. max.

Note 1) Please be careful so that other adjacent components does not receive any thermal or mechanical influences.

Especially in the case of using hot gun with strong air blow, the adjacent component might be flied apart.

Note 2) Please put on a wrist wrap in order to protect the other devices from ESD.

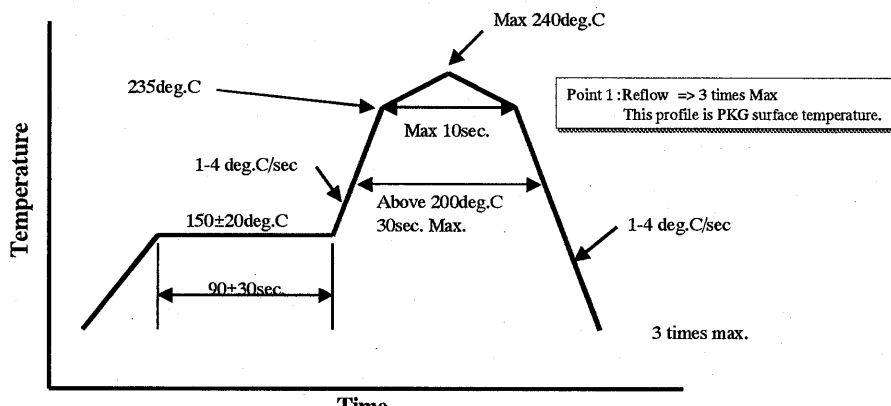
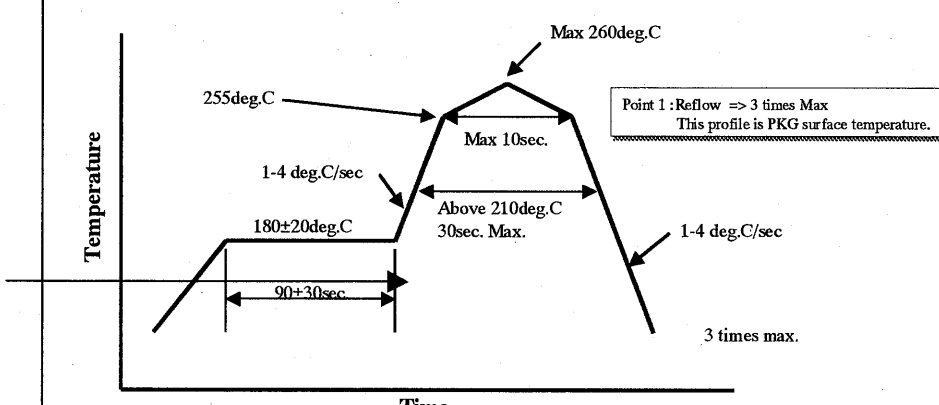
Note 3) Mitsubishi does NOT recommend, and also NOT guarantee to use the removed device.

5. Notice

These conditions that are shown on this technical note are not only guaranteed conditions but also MITSUBISHI's recommended conditions.

Please confirm the assembly conditions at customer side before using our device.

MITSUBISHI ELECTRIC CORPORATION

Rev. No.	SUMMARY OF CHANGES	SIGNATURE & DATE
*	Newly prepared	Y.Miyamoto 5/Nov./2003
A	<p>Delete "recommended reflow soldering for Lead solder".</p> <p>3-1-1 Pb solder type</p> <p>Alloy : Pb37/Sn63 or Pb36/Sn62/Ag2</p> <p>Particle size : 25-35mm</p> <p>Content of Halide : About 0.05% (Br,Cl,F)</p> <p>3-1-2 Reflow profile</p>  <p>Change "Reflow profile for Lead free solder".</p>  <p>Add the item 4.</p>	T.Hosomi 28/Apr./2008
B	<p>Add 3-2 Recommended conditions using a soldering iron.</p> <p>Add 4 Recommended rework process.</p>	<p>J. Ishida</p> <p>'08-6/12</p>