Application Note ---

Bending Terminal Leads

When bending the leads, in order to avoid excessive extend in the area where the leads enter the resinous body, use a tool that clamps the point between the package and the bending point. Improper bending will damage the die or separate the resin from the mounting frame, resulting in a degradation in electrical characteristics or a reliability problem such as poor resistance to moisture.

The leads must be bent only once and they should not be bent at an angle of more than 90°. Leads must be formed before fixing them to a printed circuit board or to a heatsink. Never form the leads after soldering.

The load shall be restricted such that the bend starts recommended distance (X) from the body of the component part.

X=2 mm for T-1, DO-41 Mini, DO-41, DO-15 CASE.
X=3 mm for DO-201AD CASE.
X=4 mm for R-6 CASE.

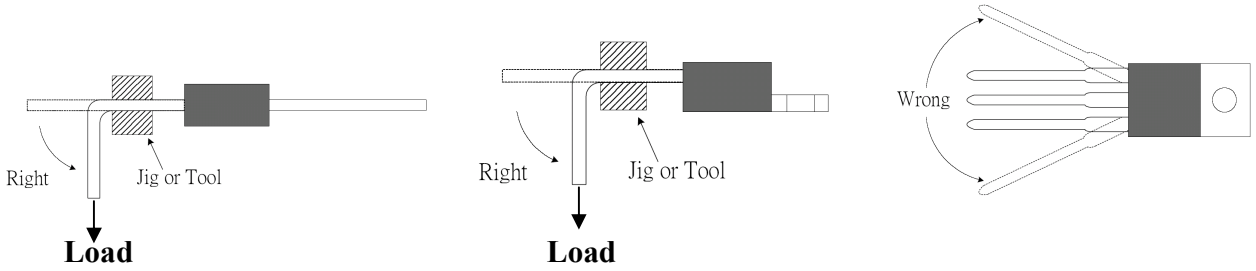


Figure 1. Bending Terminal Leads

Mounting to Heatsink

The mounting surface of a heatsink should be free from foreign materials and metallic filings, and have enough flatness and finish comparable to that of the back of diode package. Don't screw up the unit from backside (heat sink) and please face the marking surface of unit (front side) while screwing up the unit. Be sure, when mounting devices to a heatsink, that excessive torque may cause a mechanical failure of the device or a reliability problem. (ex. electrical degrade….). Also note, insufficient torque results in poorer heat transmission.

Recommended mounting hole, screw and mounting torque corresponding to our packages are shown in Table.

Package	Mounting hole (ψ= mm)	Screw	Torque (N*m /kgf*cm)
TO-220	3.81	M3	0.50 / 5.1
TO-3P	3.05		
BRIDGE	---	M3/M5	0.50 / 5.1
ITO-220	3.18	M3	0.50 / 5.1
TO-126F	2.92	M2.5	0.50 / 5.1

Thermal compounds (greases) facilitate interface thermal conduction between device and heatsink. Recommended compounds are hydrophilic oil based. When applied, compounds should be spread evenly in a very thin layer over the whole contact area.
The contact thermal resistance Rth j-c in our data sheets are defined with the recommended mounting torque and with the thermal compound.

Soldering of Through-hole Mounting Devices

Resistance to soldering heat test is carried out under the condition shown below. Soldering should be completed at a lowest possible temperature for a shortest period.

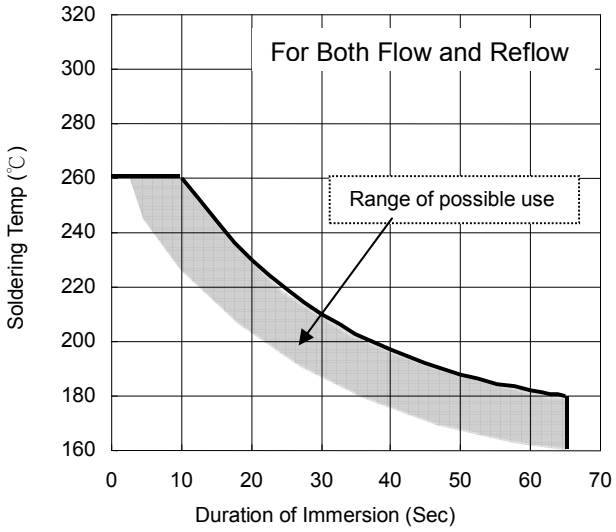
Temp. 260± 5℃

Duration 10± 1s

Figure 12 shows the Dip duration vs. Solder Temperature Rating for plastic diodes.

General requirements for manual soldering are as follows:
1. Use a soldering iron of 30 watts maximum, that is grounded or with a high insulation resistance.
2. The iron tip is kept away from any resinous body.
3. Attachment should be achieved in not more than 3 seconds.

Be sure again not to put an excessive mechanical stress on devices, such as a rough insertion of device into a through-hole, or manual reforming of leads after soldering.



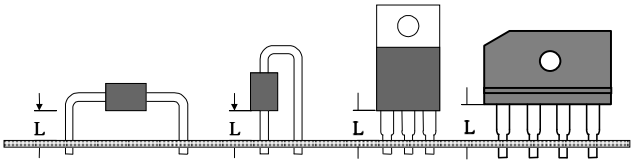


Figure 2. Rated Duration of Immersion vs. Solder Temperature