SEMICONDUCTOR

# MUR2060 MURF2060 MUR2060D2

## POLYIMIDE PASSIVATED SUPER FAST RECTIFIER

Reverse Voltage - 600 Volts
Forward Current -20.0Amperes

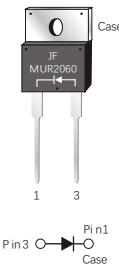
## Features

- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Fast switching for high efficiency
- Low forward voltage drop
- Single rectifier construction
- High surge capability
- High temperature soldering guaranteed:260°C/10 seconds,
- Component in accordance to RoHS 2015/863/EU

Pb
RoHS
COMPLIANT

TO-220AC

MUR2060

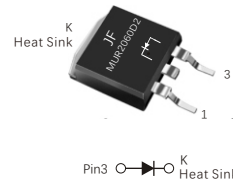



ITO-220AC

MURF2060


TO-263($D^2$PAK)

**MUR2060D2**




## Mechanical Data

- Case: JEDEC TO-220AC、ITO-220AC、 TO-263($D^2$PAK) molded plastic body
- Terminals: Solderable per MIL-STD-202,method 208
- Polarity: As marked
- Mounting Position: Any
- Mounting Torque: 10 in-lbs maximum

## Typical Applications

- For use in boost stage in SMPS
- High frequency inverters for solar inverters
- DC/DC converters
- High frequency output rectification of battery chargers
- Free wheeling diodes in motor drivers

## Maximum Ratings

(Ratings at 25°C ambient temperature unless otherwise specified ,Single phase ,half wave ,resistive or inductive load. For capacitive load,derate by 20%.)

| Parameters | Symbol | Value | Unit |
|---|---|---|---|
| Maximum repetitive peak reverse voltage | $V_{RRM}$ | 600 | V |
| Maximum average forward rectified current | $I_{F(AV)}$ | 20.0 | A |
| Peak forward surge current 8.3mS single half sine-wave superimposed on rated load (JEDEC method,Total device) | $I_{FSM}$ | 250 | A |
| Rating for fusing(t<8.3ms) | $I^2t$ | 259.375 | $A^2S$ |
| Operating junction temperature range | $T_J$ | -55 to 175 | ℃ |
| Storge temperature range | Tstg | -55 to 175 | ℃ |

# RATINGS AND CHARACTERISTICS OF MUR2060、MURF2060、MUR2060D2

## Electrical Characteristcs($T_a$=25℃ Unless Otherwise Noted)

| Parameters | Test Conditions | | Symbol | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|---|---|
| Breakdown voltage<br>Blocking voltage | $I_R$=200μA | | $V_{BR}$<br>$V_R$ | 600 | - | - | V |
| Instaneous forward voltage | $T_J$=25℃ | $I_F$=5A | $V_F$ 1) | - | 1.17 | - | V |
| | | $I_F$=10A | | - | 1.34 | - | |
| | | $I_F$=20A | | - | 1.59 | 1.70 | |
| | $T_J$=125℃ | $I_F$=5A | | - | 0.87 | - | |
| | | $I_F$=10A | | - | 1.03 | - | |
| | | $I_F$=20A | | - | 1.30 | - | |
| Reverse current | $T_J$=25℃ | $V_R$=600V | $I_R$ 2) | - | - | 5.0 | μA |
| | $T_J$=125℃ | | | - | - | 50 | μA |
| | $T_J$=150℃ | | | - | - | 250 | |
| Junction capacitance | 4V,1MHz | | $C_J$ | - | 80 | - | pF |

Notes: 1.Pulse Test:300μS pulse width,1% duty cycle

2.Pulse test:pulse width≤40ms

## Dynamic Recovery Characteristcs（$T_j$=25℃）

| Parameters | Test Conditions | Symbol | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|---|
| Reverse recovery time | $I_F$=0.5A,$I_R$=1A,$I_{RR}$=0.25A | trr | - | 30 | 35 | ns |
| | $I_F$=1A,di/dt=200A/μS,$V_R$=30V | trr | - | 25 | | ns |

# RATINGS AND CHARACTERISTICS OF MUR2060、MURF2060、MUR2060D2

## Thermal Characteristics

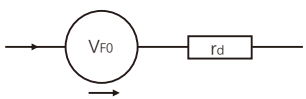
| Parameter | Symbol | TO-220 | ITO-220 | TO-263 | Unit |
|---|---|---|---|---|---|
| Typical thermal resistance [3] | $R_{\theta JC}$ | 1.3 | 3.5 | 1.3 | ℃/W |

3. Thermal resistance from junction to case

## Available Pack Information

| Product code | Pack | Box Size L×W×H(mm) | Quantity(pcs/box) | Carton SizeL×W×H(mm) | Quantity(box/carton) |
|---|---|---|---|---|---|
| MUR2060-TO-220AC | P/T | 558×148×38 | 1000 | 565×225×170 | 5 |
| MURFS2060-ITO-220AC | P/T | 558×148×38 | 1000 | 565×225×170 | 5 |
| MUR2060D2-TO-263 | P/T | 558×148×38 | 1000 | 565×225×170 | 5 |

## Equivalent circuits for forward power loss calculation




$V_{f0}$: threshold voltage 0.91V

$r_d$: Dynamic resistance 0.042Ω

Forward power loss of diode=$V_{F0}\times I_{F(AV)}+r_d\times I_{F(RMS)}^2$

Fig.1-Forward Current Derating Curve

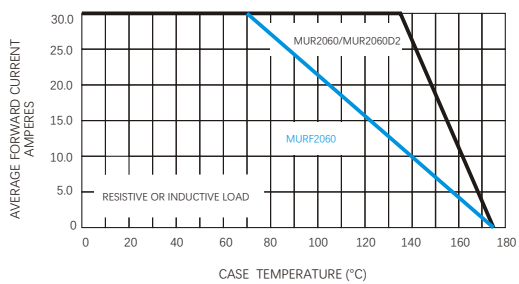



Fig.2-Maximum Non-repetitive Peak Forward Surge Current

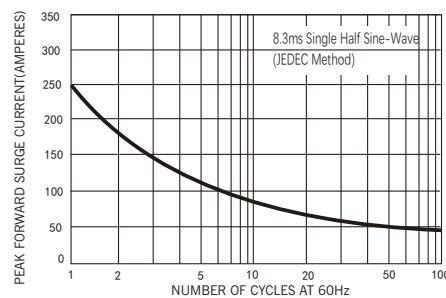


Fig.3-Typical Instantaneous Forward Characteristics,Per Leg

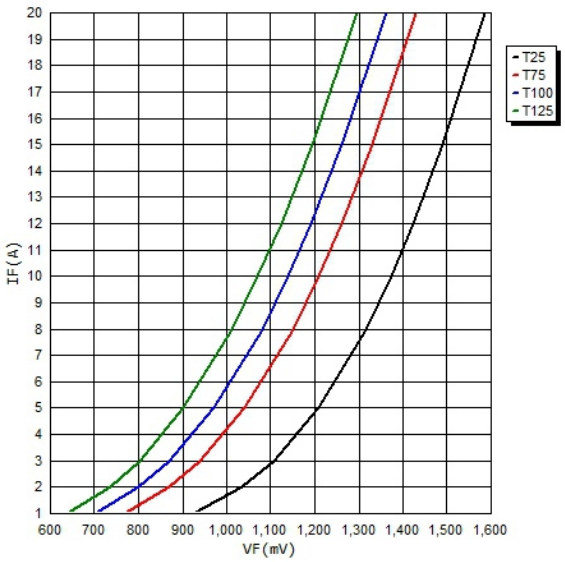



Fig.4-Typical Reverse Characteristics,Per Leg

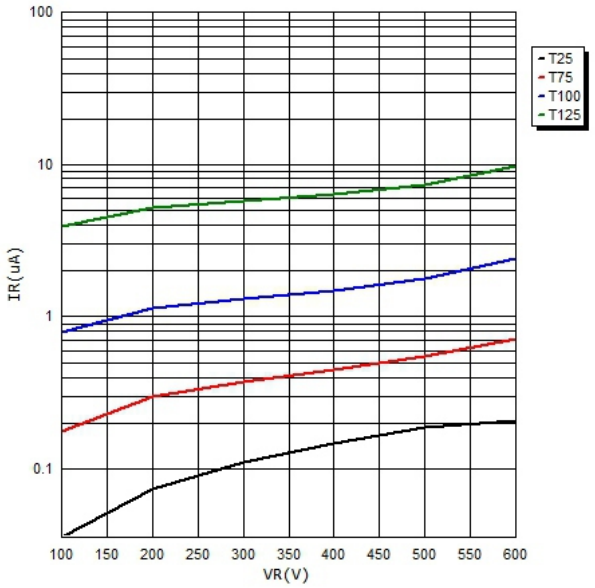
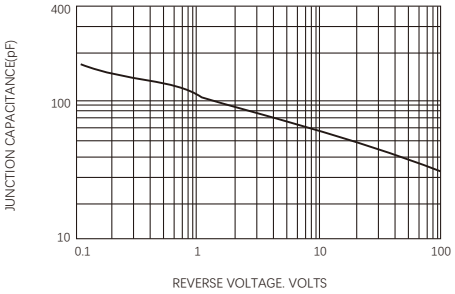
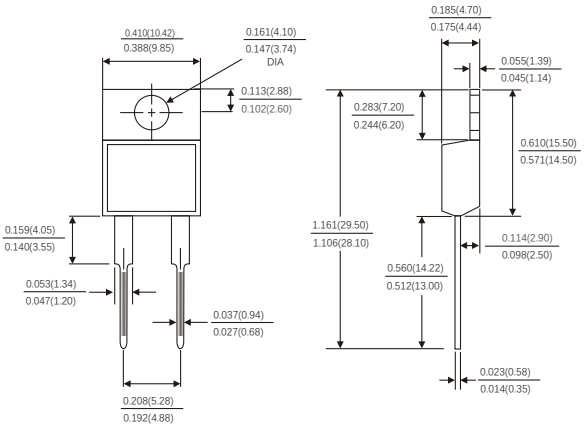



Fig.5-Typical Junction Capacitance

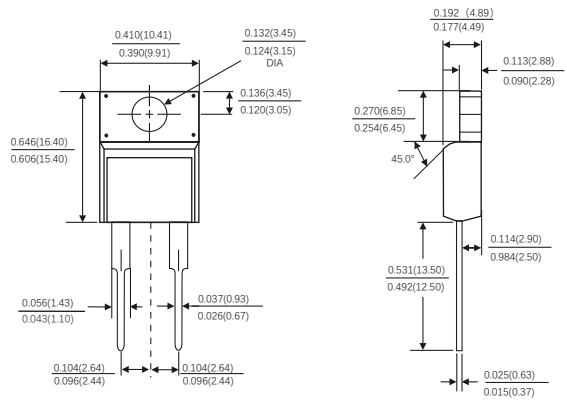


# PACKAGE OUTLINE DIMENSIONS

## TO-220AC

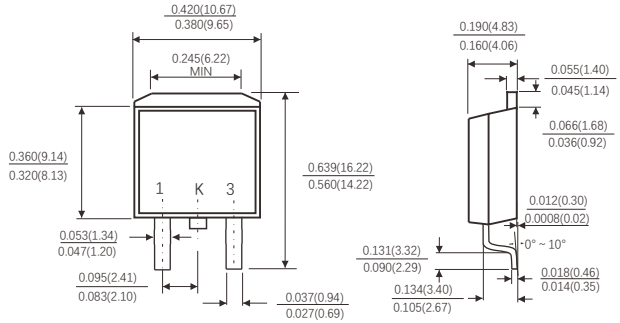



## ITO-220AC



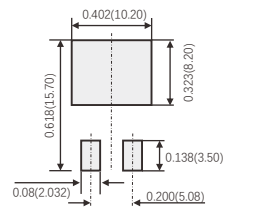

Dimensions in inches and (millimeters)

## TO-263
## $D^2PAK$




### Suggested Pad Layout

(TO-263)




(设计者可参考推荐值根据焊接工艺
要求自行确定适合的焊盘尺寸)
(Designers can refer to the recommended
values according to the manufacturing process
requirements to determine the appropriate pad size)

Dimensions in inches and (millimeters)

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