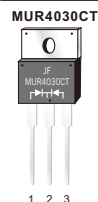


### FEATURES

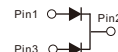
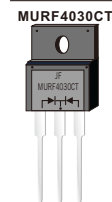
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Ultrafast and soft recovery time for high efficiency
- Low VF, Low power loss
- Polyimide passivation
- High surge capability
- Meets JESD 201 class 2 whisker test
- High temperature soldering guaranteed:260°C/10s at terminals
- Component in accordance to RoHS 2011/65/EU



TO-220AB

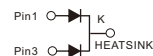


ITO-220AB



TO-263AB

MUR4030D1



### MECHANICAL DATA

- Case: JEDEC TO-220AB、ITO-220AB、TO-263
- Molding compound meets UL94V-0 flammability rating
- Terminals: Lead solderable per J-STD-002 and JESD22-B102
- Polarity: As marked
- 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 )

Parameter	Symbol	Value	Unit
Maximum repetitive peak reverse voltage	V <sub>RRM</sub>	300	V
Maximum average forward rectified current (see fig.1)	Per leg	20.0	A
	Total device	40.0	
Surge non repetitive forward current tp=10ms sinusoidal	I <sub>FSM</sub>	300	A
Maximum operating junction temperature	T <sub>J</sub>	175	°C
Storage temperature range	T <sub>stg</sub>	-65 to +175	°C

PRIMARY CHARACTERISTICS	
I <sub>F(AV)</sub>	2*20A
V <sub>RRM</sub>	300V
I <sub>FSM</sub>	300A
V <sub>F</sub> at I <sub>F</sub> =20.0A (125°C)	0.85V
I <sub>r</sub>	2 μ A
T <sub>J(MAX)</sub>	175°C
Diode variations	Common cathode

# RATINGS AND CHARACTERISTIC OF MUR4030CT,MURF4030CT,MUR4030D1

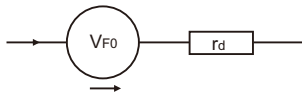
## ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C Unless otherwise noted)

Parameter	Test Conditions		Symbol	Min.	Typ.	Max.	Unit
Breakdown voltage Blocking voltage	I <sub>R</sub> =200 μA		V <sub>BR</sub> V <sub>R</sub>	300	–	–	V
Instaneous forward voltage	T <sub>J</sub> =25°C	I <sub>F</sub> =5A	V <sub>F</sub> <sup>1)</sup>	–	0.81	–	V
		I <sub>F</sub> =15A		–	0.93	–	
		I <sub>F</sub> =20A		–	1.05	1.30	
	T <sub>J</sub> =125°C	I <sub>F</sub> =5A		–	0.65	–	
		I <sub>F</sub> =15A		–	0.80	–	
		I <sub>F</sub> =20A		–	0.85	–	
Reverse current	T <sub>J</sub> =25°C	V <sub>R</sub> =200V	I <sub>R</sub> <sup>2)</sup>	–	0.1	2.0	μA
	T <sub>J</sub> =100°C			–	1.5	–	μA
	T <sub>J</sub> =125°C			–	7.5	–	
Junction capacitance	4V,1MHz		C <sub>J</sub>	–	165	–	pF

Notes: 1.Pulse test: 300 μs pulse width,1% duty cycle

2.Pulse test: pulse width ≤ 40ms

## Equivalent circuits for forward power loss calculation



V<sub>F0</sub>: threshold voltage 0.78V

r<sub>d</sub>: Dynamic resistance 0.0125Ω

Forward power loss of diode = V<sub>F0</sub> × I<sub>F(AV)</sub> + r<sub>d</sub> × I<sub>F(RMS)</sub><sup>2</sup>

## DYNAMIC RECOVERY CHARACTERISTICS (T<sub>J</sub>=25°C)

Parameters	Test Conditions	Symbol	Min.	Typ.	Max.	Units
Reverse recovery time	I <sub>F</sub> =0.5A, I <sub>R</sub> =1A, I <sub>RR</sub> =0.25A	trr	–	–	30	ns
	I <sub>F</sub> =1A, dI <sub>F</sub> /dt=–100A/μs, V <sub>R</sub> =30V		–	21	35	ns

# RATINGS AND CHARACTERISTIC OF MUR4030CT,MURF4030CT,MUR4030D1

## THERMAL CHARACTERISTICS

Parameter	Symbol	MUR4030CT	MURF4030CT	MUR4030D1	Unit
Typical thermal resistance <sup>3)</sup>	$R_{\theta jc}$	1.3	3.5	1.3	$^{\circ}\text{C}/\text{W}$

3. Thermal resistance from junction to case

## AVAILABLE PACK INFORMATION

Product code	Pack	Box Size L×W×H (mm)	Quantity (pcs/box)	Carton Size L×W×H (mm)	Quantity (box/carton)
MUR4030CT-TO-220AB	P/T	558×148×38	1000	565×225×170	5
MURF4030CT-ITO-220AB	P/T	558×148×38	1000	565×225×170	5
MUR4030D1-TO-263	P/T	558×148×38	1000	565×225×170	5

FIG.1-Conduction losses versus average current (per diode)

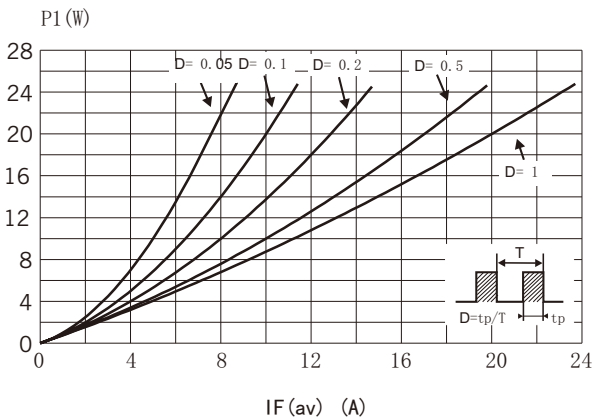
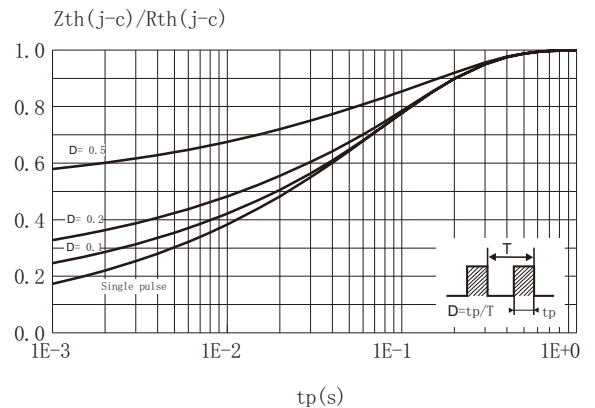


FIG.2-Relative variation of thermal impedance Junction to case versus pulse duration



# RATINGS AND CHARACTERISTIC OF MUR4030CT,MURF4030CT,MUR4030D1

FIG.3-FORWARD CURRENT DERATING CURVE

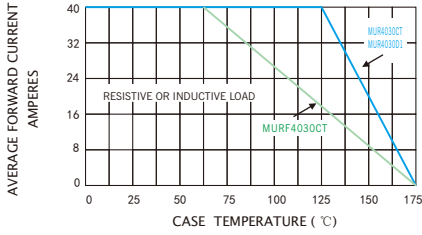


FIG.4-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

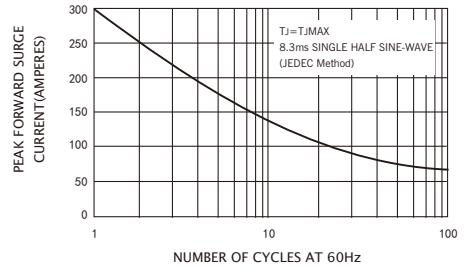


FIG.5-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

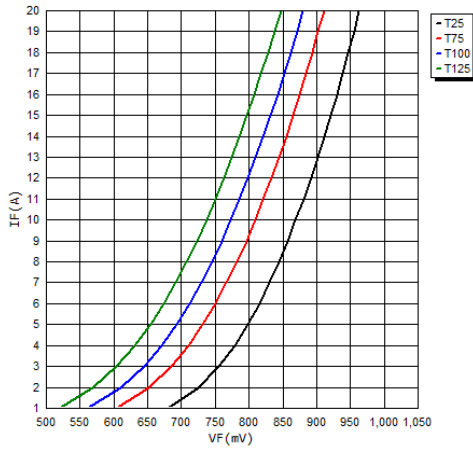


FIG.6-TYPICAL REVERSE CHARACTERISTICS

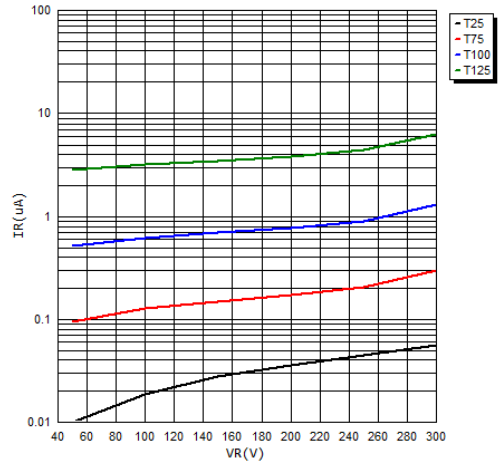
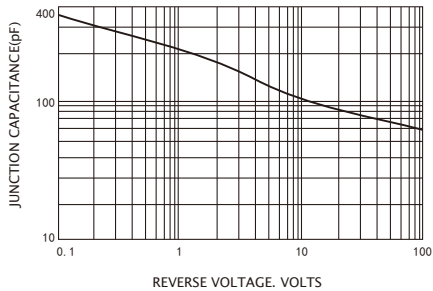


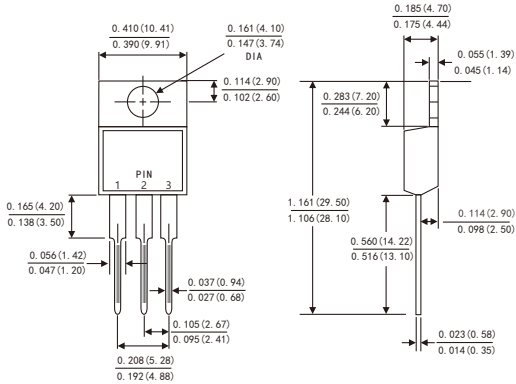
FIG.7-TYPICAL JUNCTION CAPACITANCE



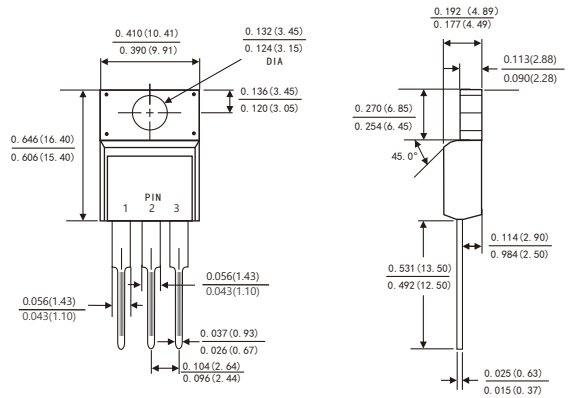
# PACKAGE OUTLINE DIMENSIONS

Dimensions in inches and (millimeters)

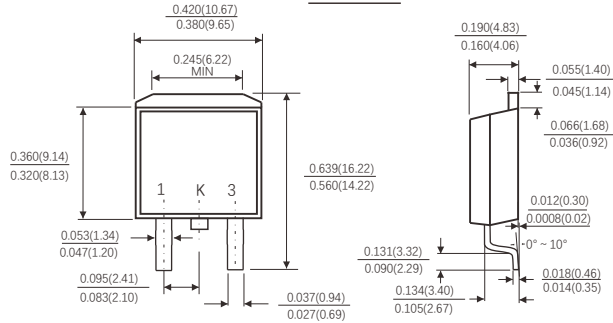
## TO-220AB



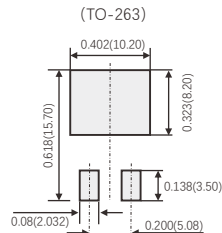
## ITO-220AB



## TO-263



## Suggested Pad Layout



(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)

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