SEMICONDUCTOR

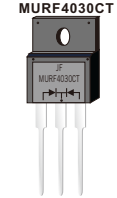
MUR4030CT,MURF4030CT,MUR4030D1

POLYIMIDE PASSIVATED SUPER FAST RECTIFIER

Reverse Voltage - 300 Volts
Forward Current -40.0Amperes

TO-220AB
MUR4030CT

ITO-220AB
MURF4030CT

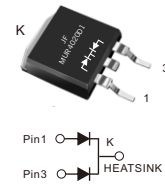


RoHS COMPLIANT

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℃/10s at terminals
- Component in accordance to RoHS 2011/65/EU

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

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2*20A
V_{RRM}	300V
I_{FSM}	300A
V_F at I_F=20.0A(125℃)	0.85V
I_R	2μA
T_J(MAX)	175℃
Diode variations	Common cathode

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℃ ambient temperature unless otherwise specified)

Parameter		Symbol	Value	Unit
Maximum repetitive peak reverse voltage		V_{RRM}	300	V
Maximum average forward rectified current (see fig.1)	Per leg	$I_{F(AV)}$	20.0	A
	Total device		40.0	
Surge non repetitive forward current tp=10ms sinusoidal		I_{FSM}	300	A
Maximum operating junction temperature		T_J	175	℃
Storage temperature range		T_{stg}	-65 to+175	℃

RATINGS AND CHARACTERISTIC OF MUR4030CT,MURF4030CT,MUR4030D1

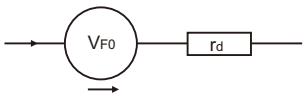
ELECTRICAL CHARACTERISTCS（T_A=25℃ Unless otherwise noted）

Parameter	Test Conditions		Symbol	Min.	Typ.	Max.	Unit
Breakdown voltage Blocking voltage	IR=200μA		V_{BR} V_R	300	–	–	V
Instaneous forward voltage	T_J=25℃	I_F=5A	V_F 1)	–	0.81	–	V
		I_F=15A		–	0.93	–	
		I_F=20A		–	1.05	1.30	
	T_J=125℃	I_F=5A		–	0.65	–	
		I_F=15A		–	0.80	–	
		I_F=20A		–	0.85	–	
Reverse current	T_J=25℃	V_R=200V	I_R 2)	–	0.1	2.0	μA
	T_J=100℃			–	1.5	–	μA
	T_J=125℃			–	7.5	–	
Junction capacitance	4V,1MHz		C_J	–	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_{F0}: threshold voltage 0. 78V

r_d: Dynamic resistance 0.0125Ω

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

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	ns
	I_F=1A,dI_F/dt=-100A/μs, V_R=30V		–	21	35	ns

RATINGS AND CHARACTERISTIC OF MUR4030CT,MURF4030CT,MUR4030D1

THERMAL CHARACTERISTCS

Parameter	Symbol	MUR4030CT	MURF4030CT	MUR4030D1	Unit
Typical thermal resistance 3)	$R_{\theta JC}$	1.3	3.5	1.3	℃/W

3.Thermal resistance from junction to case

AVAILABALE PACK INFORMATION

Product code	Pack	Box Size L×W×H(mm)	Quantity(pcs/box)	Carton SizeL×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)

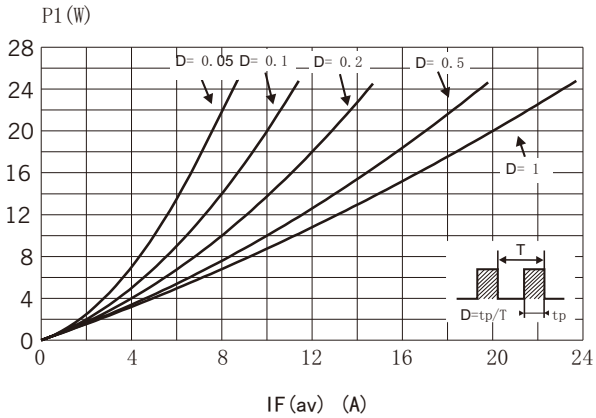
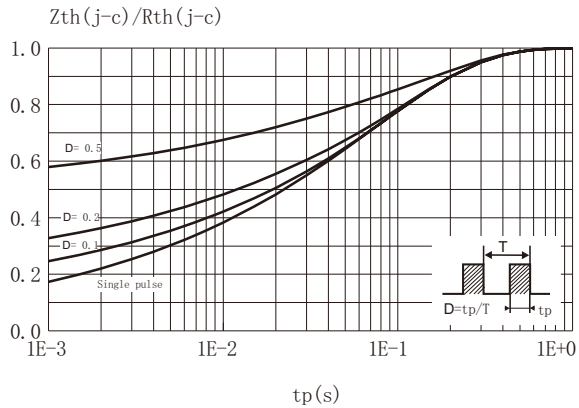


FIG.2-Relative variation of thermal impedance Junction to case versus pulse duration



RATINGS AND CHARACTERISTIC OF MUR4030CT,MURF4030CT,MUR4030D1

FIG.3-FORWARD CURRENT DERATING CURVE

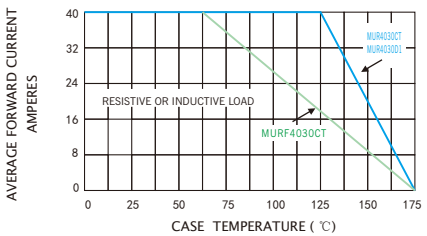


FIG.4-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

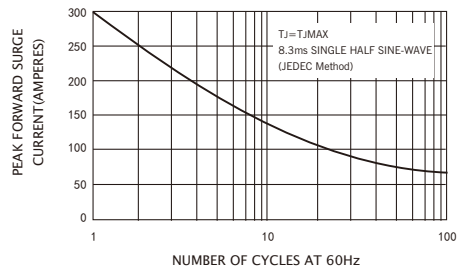


FIG.5-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

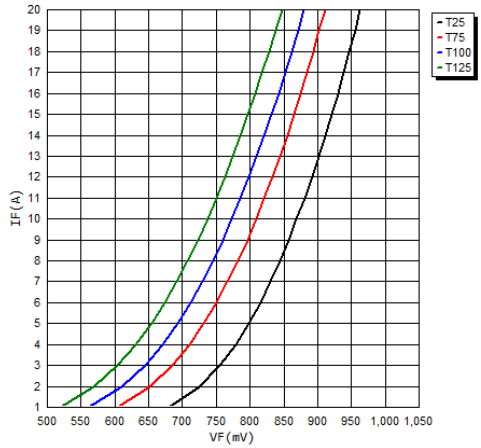


FIG.6-TYPICAL REVERSE CHARACTERISTICS

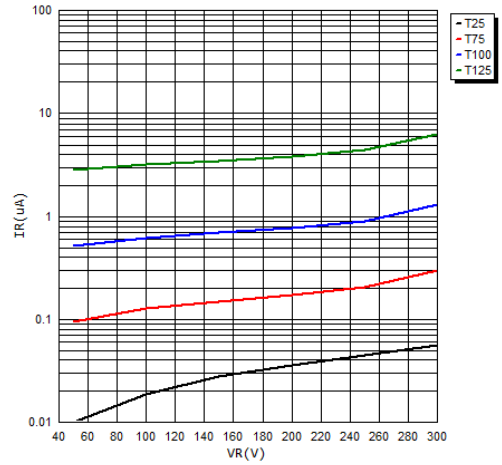
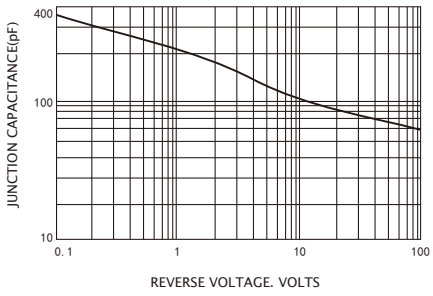


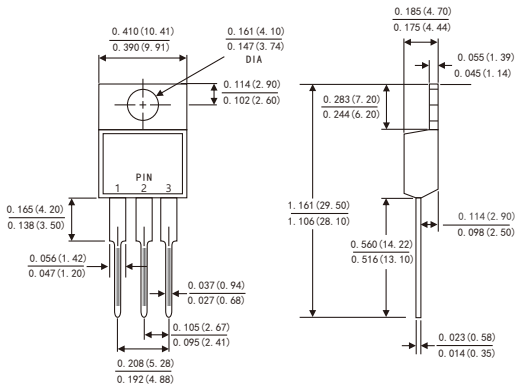
FIG.7-TYPICAL JUNCTION CAPACITANCE



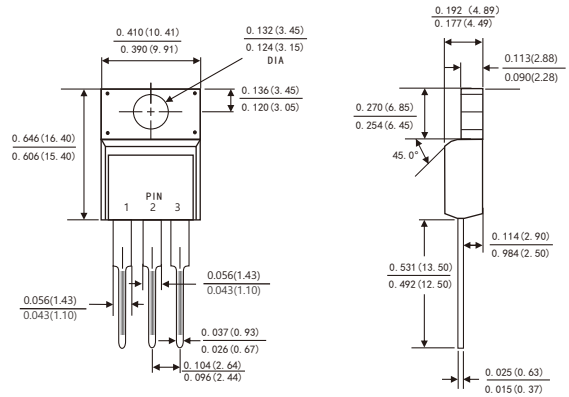
PACKAGE OUTLINE DIMENSIONS

Dimensions in inches and (millimeters)

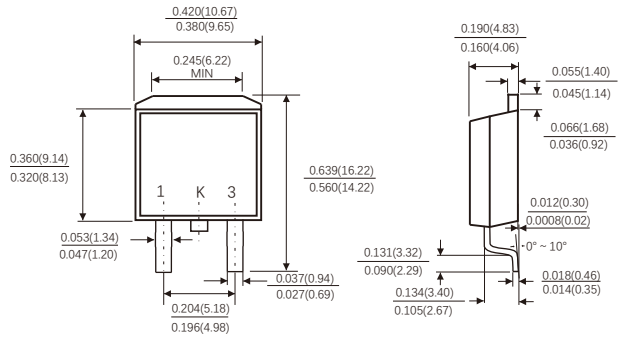
TO-220AB



ITO-220AB

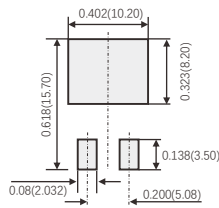


TO-263



Suggested Pad Layout

(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)

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