SEMICONDUCTOR

MUR1030D2

POLYIMIDE PASSIVATED SUPER FAST RECTIFIER

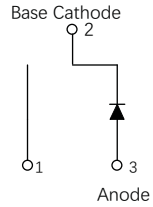
Reverse Voltage - 300 Volts
Forward Current -10.0Amperes

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
- High temperature soldering guaranteed:260℃/10s at terminals
- Component in accordance to RoHS 2015/863/EU

RoHS COMPLIANT

TO-263(D^2PAK)
MUR1030D2



Mechanical Data

- Case: JEDEC TO-263(D^2PAK)
- Molding compound meets UL94V-0 flammability rating
- Terminals: Lead solderable per J-STD-002 and JESD22-B102
- Polarity: As marked

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

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	10A
V_{RRM}	300V
I_{FSM}	150A
V_F at I_F=10A(125℃)	1V
I_R	5μA
T_J(MAX)	175℃
Diode variations	Single

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)	$I_{F(AV)}$	10.0	A
Surge non repetitive forward current tp=8.3ms sinusoidal	I_{FSM}	150	A
Non repetitive avalanche current tp=20μs square	I_{RSM}	5	A
Maximum operating junction temperature	T_J	175	℃
Storage temperature range	T_{stg}	-55 to+175	℃

RATINGS AND CHARACTERISTICS OF MUR1030D2

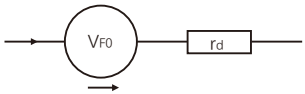
Electrical Characteristcs（T_A=25℃ Unless otherwise noted)

Parameter	Test Conditions		Symbol	Typ.	Max.	Unit
Instaneous forward voltage	I_F=10A	T_A=25℃	V_F 1)	1.10	1.20	V
		T_A=100℃		0.99	-	
		T_A=125℃		0.96	-	
	I_F=5A	T_A=25℃		0.96	-	
		T_A=100℃		0.85	-	
		T_A=125℃		0.81	-	
Reverse current	V_R=300V	T_A=25℃	I_R 2)	-	5	μA
		T_A=100℃		-	20	μA
		T_A=125℃		-	200	μA
Typical junction capacitance	4V,1MHz		C_J	83		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 0.75V

r_d: Dynamic resistance 0.025Ω

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	-	-	25	ns
	I_F=1A,dI_F/dt=-50A/μs,V_R=30V		-	19	35	ns

RATINGS AND CHARACTERISTICS OF MUR1030D2

Thermal Characteristcs

Parameter	Symbol	MUR1030D2	Unit
Typical thermal resistance 3)	$R_{\theta JC}$	2.5	℃/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)
MUR1030D2-TO-263	P/T	558×148×38	1000	565×225×170	5

FIG.1-Conduction losses versus average current

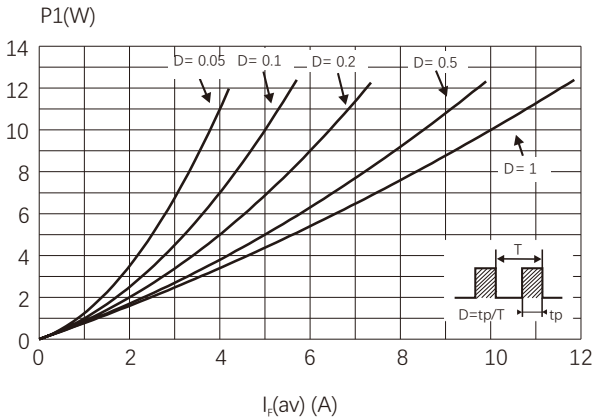
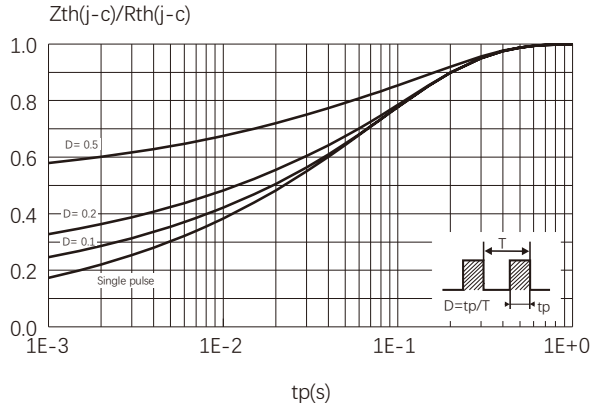


FIG.2-Relative variation of thermal impedance
Junction to case versus pulse duration



RATINGS AND CHARACTERISTICS OF MUR1030D2

FIG.3-Forward Current Derating Curve

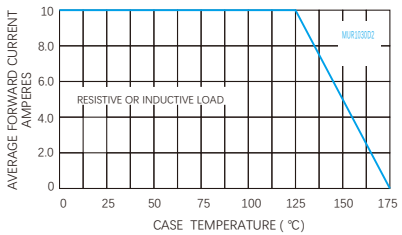


FIG.4-Maximum Non-repetitive Peak Forward Surge Current

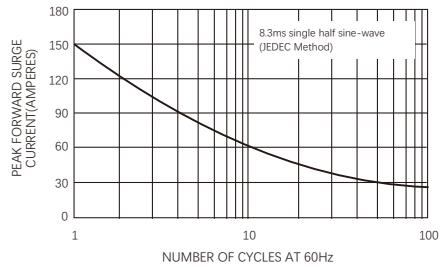


FIG.5-Typical Instantaneous Forward Characteristics

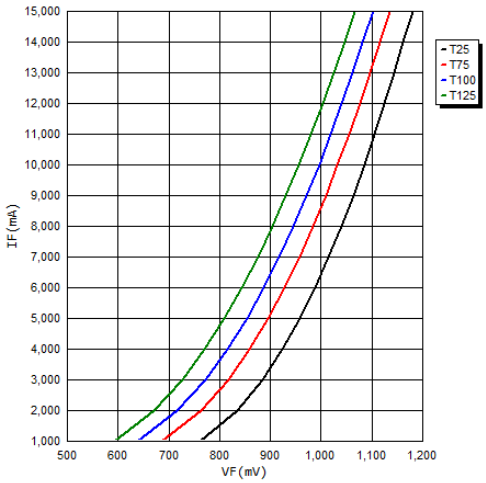


FIG.6-Typical Reverse Characteristics

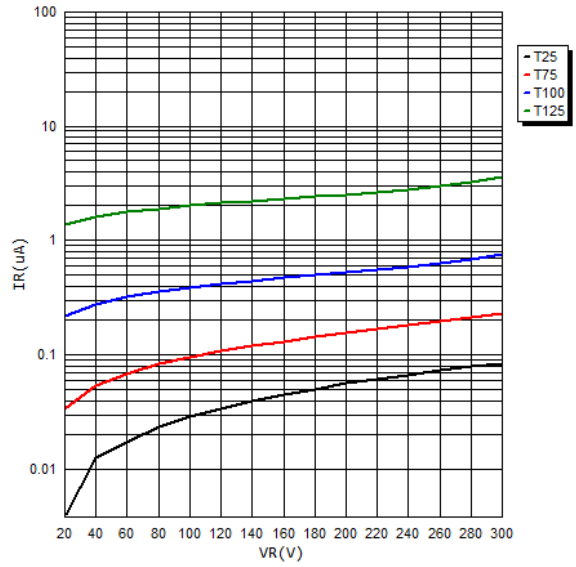
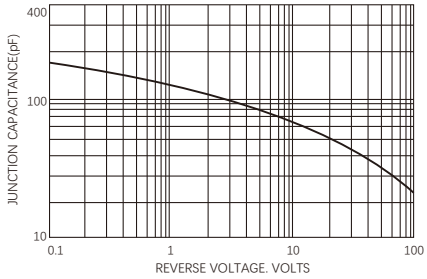
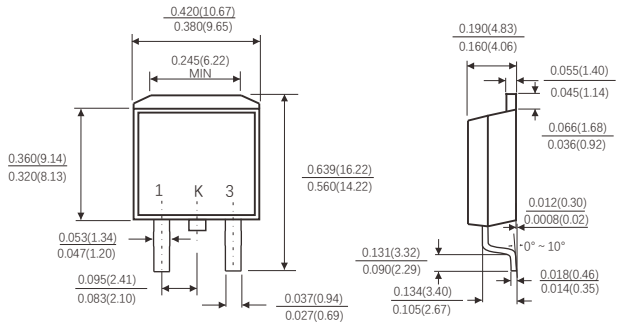


Fig.7-Typical Junction Capacitance



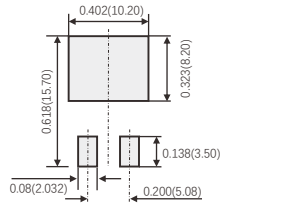
PACKAGE OUTLINE DIMENSIONS

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)

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