

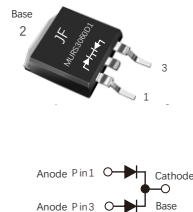
## Features

- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Ultrafast Recovery Characteristics
- Low forward voltage drop
- Low Reverse Leakage Current
- Soft Recovery Characteristics
- High temperature soldering guaranteed:260°C/10 seconds,  
0.25"(6.35mm)from case
- Component in accordance to RoHS 2015/863/EU



RoHS  
COMPLIANT

## TO-263(D<sup>2</sup>PAK)



## Mechanical Data

- Case: JEDEC TO-263(D<sup>2</sup>PAK) molded plastic body
- Terminals: Lead solderable per MIL-STD-750,method 2026
- Polarity: As marked
- Mounting Position: Any

## Typical Applications

- Anti-Parallel Diode
  - Switching Power Supply
  - Inverters
- Free wheeling Diode
  - Motor Controller
  - Converters
  - Inverters
- PFC
- Snubber, Clamp diode

PRIMARY CHARACTERISTICS	
I <sub>F(AV)</sub>	2×15.0A
V <sub>R</sub>	600V
I <sub>FSM</sub>	300A
V <sub>F</sub> at I <sub>F</sub> =15.0A,125°C	1.40V
T <sub>rr typ</sub>	24ns
T <sub>JMAX</sub>	175°C
Diode variation	Common cathode

## Maximum Ratings

(Ratings at 25°C ambient temperature unless otherwise specified )

Parameter	Symbol	Value	Unit
Maximum repetitive peak reverse voltage	V <sub>RRM</sub>	600	V
Maximum average forward rectified current	I <sub>F(AV)</sub>	15.0	A
		30.0	
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC method at rated T <sub>J</sub> )	I <sub>FSM</sub>	300	A
Operating junction temperature range	T <sub>J</sub>	-55 to +175	°C
Storage temperature range	T <sub>stg</sub>	-55 to +175	°C

# RATINGS AND CHARACTERISTIC OF MURS3060D1

## Electrical Characteristcs (Per leg,T<sub>J</sub>=25°C Unless otherwise noted)

Parameter	Test Conditions		Symbol	Min.	Typ.	Max.	Unit
Breakdown voltage Blocking voltage	IR=200μA		VBR VR	600	-	-	V
Instaneous forward voltage	TJ=25°C	IF=1.0A	VF <sup>1)</sup>	-	1.10	-	V
		IF=5.0A		-	1.70	-	
		IF=15.0A		-	1.90	2.50	
	TJ=125°C	IF=1.0A		-	0.65	-	
		IF=5.0A		-	1.00	-	
		IF=15.0A		-	1.40	-	
Reverse current	TJ=25°C	VR=600V	IR <sup>2)</sup>	-	2.0	10	μA
	TJ=100°C			-	30	150	μA
	TJ=125°C			-	100	500	
Junction capacitance	4V,1MHz		CJ	-	75	-	pF

Notes: 1.Pulse test: 300 μs pulse width,1% duty cycle  
2.Pulse test: pulse width≤40ms

## Dynamic Recovery Characteristics (T<sub>J</sub>=25°C Unless otherwise noted)

Parameter	Test Conditions		Symbol	Min.	Typ.	Max.	Unit
Reverse recovery time	If=0.5A,Ir=1.0A, Irr=0.25A		trr	-	24	30	ns
	Tj=25°C	If=7.5A dIf/dt=200A/μS VR=400V		-	38	-	
	Tj=125°C			-	57	-	
Peak recovery current	Tj=25°C		Irrm	-	2.8	-	A
	Tj=125°C			-	4.6	-	
Reverse recovery charge	Tj=25°C		Qrr	-	50	-	nC
	Tj=125°C			-	105	-	

# RATINGS AND CHARACTERISTIC OF MURS3060D1

## Thermal Characteristics

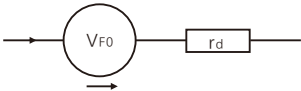
Parameter	Symbol	TO-263	Unit
Typical thermal resistance <sup>3)</sup>	R $\theta$ jc	2.0	°C/W

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)
MURS3060D1-TO-263	P/T	558×148×38	1000	565×225×170	5

## Equivalent circuits for power loss calculation



V<sub>F0</sub>: threshold voltage      1.15V  
r<sub>d</sub>: Dynamic resistance      0.06Ω  
Forward power loss of diode=V<sub>F0</sub>×I<sub>F</sub>(AV)+r<sub>d</sub>×I<sub>F</sub>(RMS)<sup>2</sup>

Fig.1- Forward Current Derating Curve(Per device)

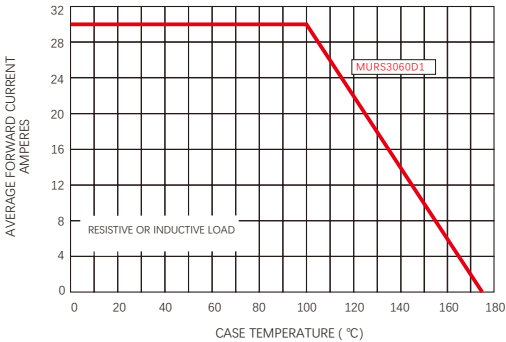
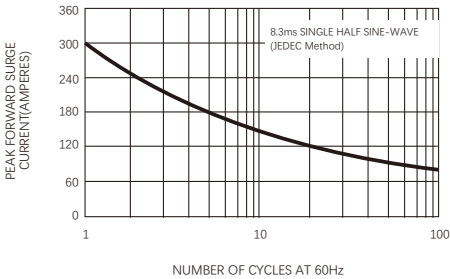


Fig.2- Maximum Non-repetitive Peak Forward Surge Current(Per device)



# RATINGS AND CHARACTERISTIC OF MURS3060D1

Fig.3-Typical Instantaneous Forward Characteristics(Per Leg)

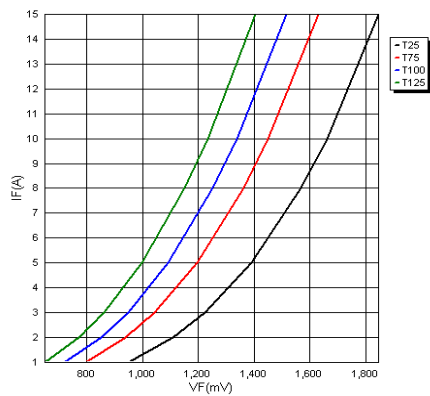


Fig.4-Typical Reverse Characteristics(Per Leg)

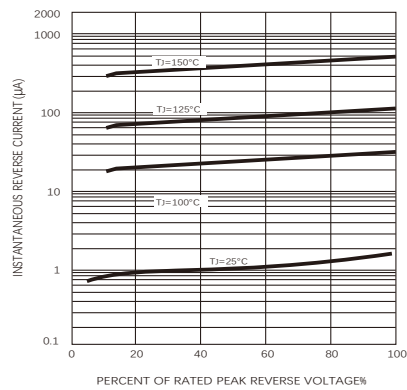


Fig.5-typical Junction Capacitance(Per Leg)

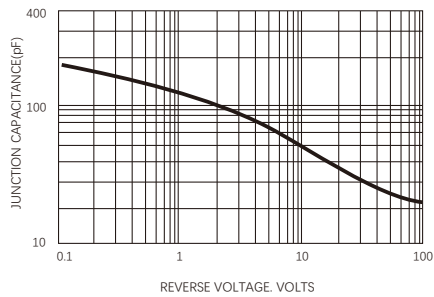


Fig.6- Typical  $T_{rr}$ ,  $t_a$ ,  $t_b$  Vs. Forward Current(Per Leg)

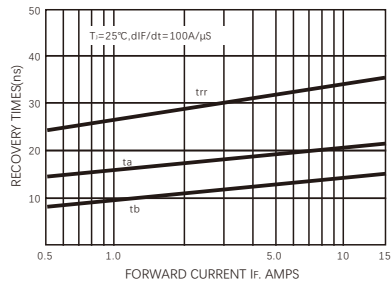
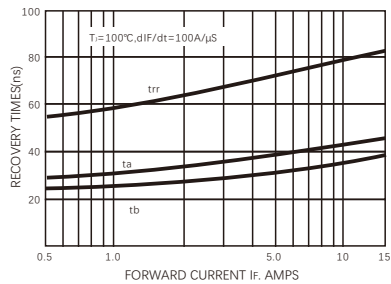
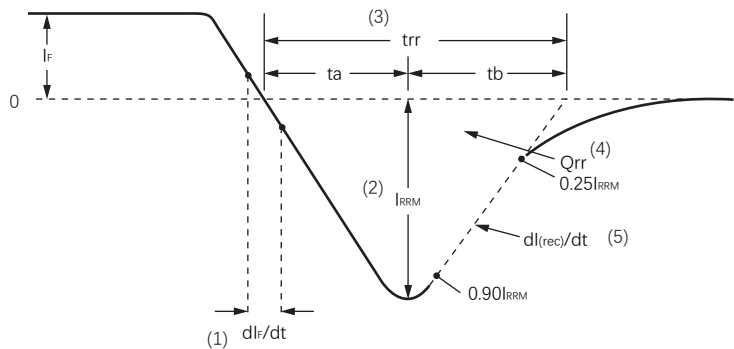


Fig.7- Typical  $T_{rr}$ ,  $t_a$ ,  $t_b$  Vs. Forward Current(Per Leg)



# RATINGS AND CHARACTERISTIC OF MURS3060D1



- (1)  $di/dt$  - rate of change of current through zero crossing
- (2)  $I_{RRM}$  - peak reverse recovery current
- (3)  $t_{rr}$  - reverse recovery time measured from zero crossing point of negative going  $I_F$  to point where a line passing through  $0.90I_{RRM}$  and  $0.25I_{RRM}$  extrapolated to zero current
- (4)  $Q_{rr}$  - area under curve defined by  $t_{rr}$  and  $I_{RRM}$

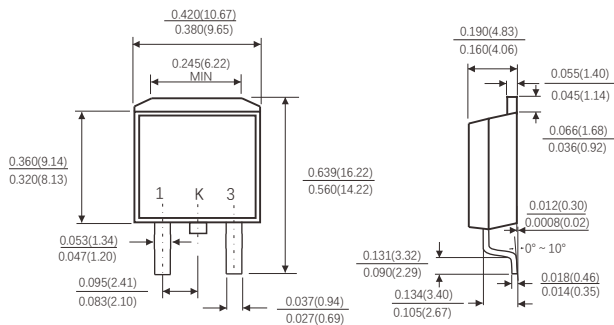
$$Q_{rr} = \frac{t_{rr} \times I_{RRM}}{2}$$

- (5)  $di_{(rec)}/dt$  - peak rate of change of current during  $t_b$  portion of  $t_{rr}$

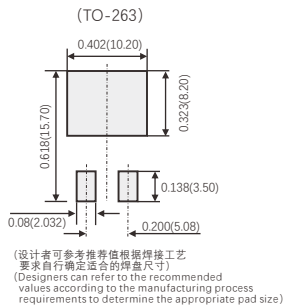
Fig.8 - Reverse Recovery Waveform and Definitions

# PACKAGE OUTLINE DIMENSIONS

## TO-263(D<sup>2</sup>PAK)



## Suggested Pad Layout



Dimensions in inches and (millimeters)

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