

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 2011/65/EU

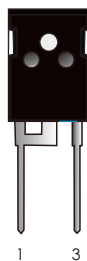
MECHANICAL DATA

- Case: TO-247AC molded plastic body
- Terminals: Lead solderable per MIL-STD-750,method 2026
- Polarity: As marked
- Mounting Position: Any

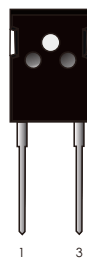
APPLICATIONS

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

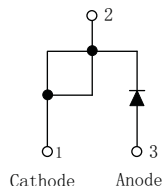
TO-247AC



TO-247AC-N



Base common cathode



MAXIMUM RATINGS

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

Parameter	Symbol	Value	Unit
Maximum repetitive peak reverse voltage	V_{RRM}	600	V
Maximum average forward rectified current	$I_F(AV)$	60.0	A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC method at rated T_J)	I_{FSM}	600	A
Operating junction temperature range	T_J	-55 to+175	°C
Storage temperature range	T_{stg}	-55 to+175	°C

RATINGS AND CHARACTERISTIC OF MURS6060P

ELECTRICAL CHARACTERISTICS (T_J=25°C Unless otherwise noted)

Parameter	Test Conditions		Symbol	Min.	Typ.	Max.	Unit
Breakdown voltage Blocking voltage	IR=100μA		VBR VR	600	—	—	V
Instaneous forward voltage	TJ=25°C	IF=5.0A	VF ¹⁾	—	0.87	—	V
		IF=20.0A		—	1.10	—	
		IF=60.0A		—	1.30	1.70	
	TJ=125°C	IF=5.0A		—	0.65	—	
		IF=20.0A		—	0.90	—	
		IF=60.0A		—	1.21	—	
Reverse current	TJ=25°C	VR=600V	IR ²⁾	—	0.2	5	μ A
	TJ=100°C			—	5.0	—	μ A
	TJ=125°C			—	23.0	50	
Junction capacitance	4V,1MHz		CJ	—	470	—	pF

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

2.Pulse test: pulse width≤40ms

DYNAMIC RECOVERY CHARACTERISTICS (T_J=25°C Unless otherwise noted)

Parameter	Test Conditions		Symbol	Min.	Typ.	Max.	Unit
Reverse recovery time	If=0.5A,Ir=1.0A, Itr=0.25A		trr	—	48	70	ns
	TJ=25℃	If=30A dIf/dt=200A/μS VR=400V		—	106	—	
	TJ=125℃			—	150	—	
Peak recovery current	TJ=25℃		Irrm	—	4.5	—	A
	TJ=125℃			—	7.5	—	
Reverse recovery charge	TJ=25℃		Qrr	—	280	—	nC
	TJ=125℃			—	600	—	

RATINGS AND CHARACTERISTIC OF MURS6060P

THERMAL CHARACTERISTICS

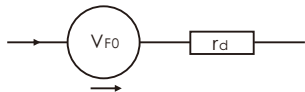
Parameter	Symbol	TO-247AC TO-247AC-N	Unit
Typical thermal resistance ³⁾	R _{θJC}	0.44 Typ. 0.90 MAX	℃/W

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)
MURS6060P-TO-247AC	P/T	530×110×60	360	550×330×130	5
MURS6060P-TO-247AC-N	P/T	530×110×60	360	550×330×130	5

Equivalent circuits for power loss calculation



V_{F0}: threshold voltage 0.95V
r_d: Dynamic resistance 0.0073 Ω
Forward power loss of diode=V_{F0}×I_F(AV) +r_d×I_F(RMS)²

FIG.1-FORWARD CURRENT DERATING CURVE

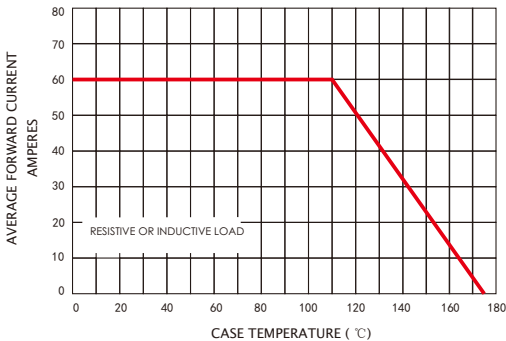
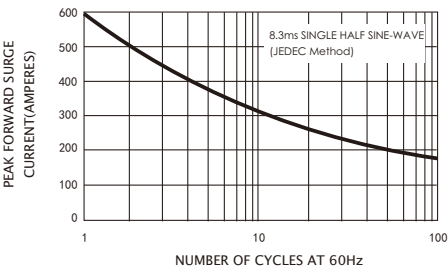


FIG.2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT



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FIG.3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

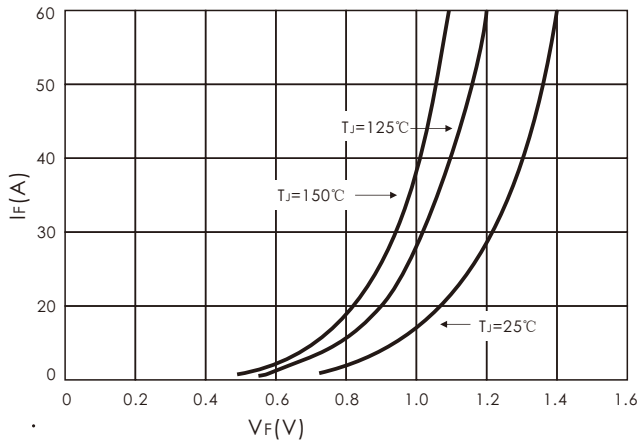


FIG.4-TYPICAL REVERSE CHARACTERISTICS

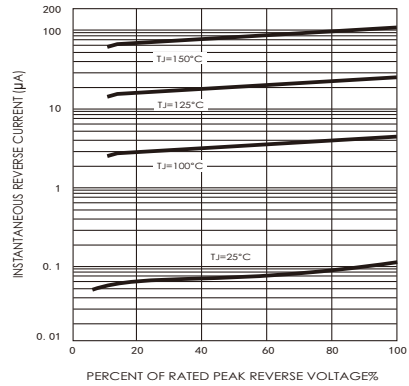


FIG.5-TYPICAL JUNCTION CAPACITANCE

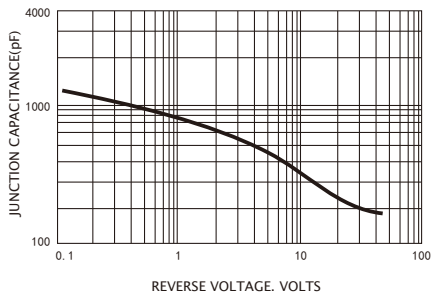


FIG.7- TYPICAL STORED CHARGE VS. dI_F/dt

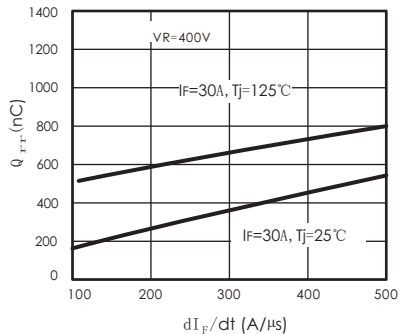


FIG.6- TYPICAL REVERSE RECOVERY TIME vs. dI_F/dt

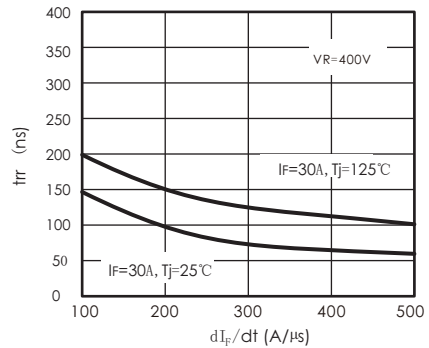
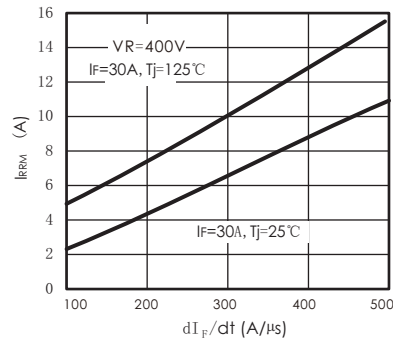
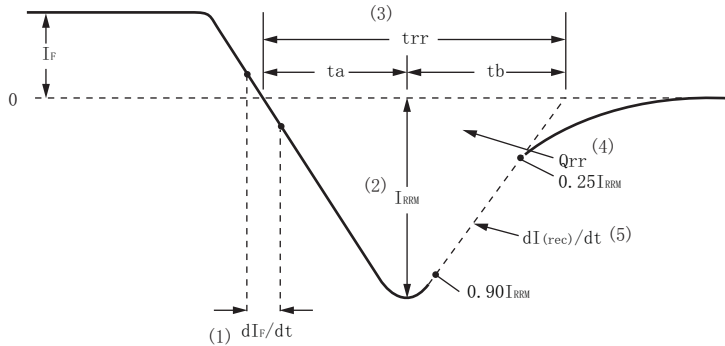
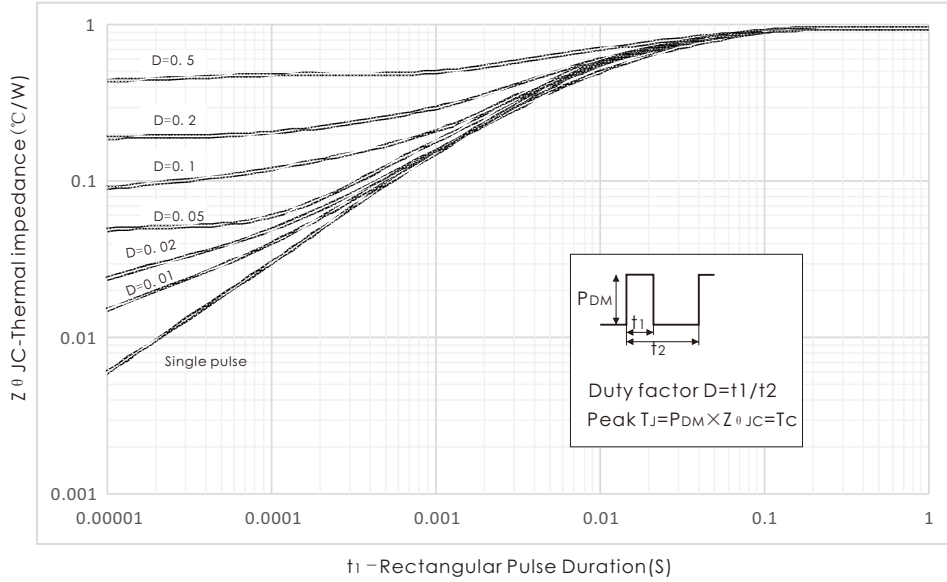


FIG.8- TYPICAL REVERSE RECOVERY CURRENT VS. dI_F/dt



RATINGS AND CHARACTERISTIC OF MURS6060P

FIG.9- Maximum Thermal Impedance $Z_{\theta JC}$ characteristics



(1) dI_F/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

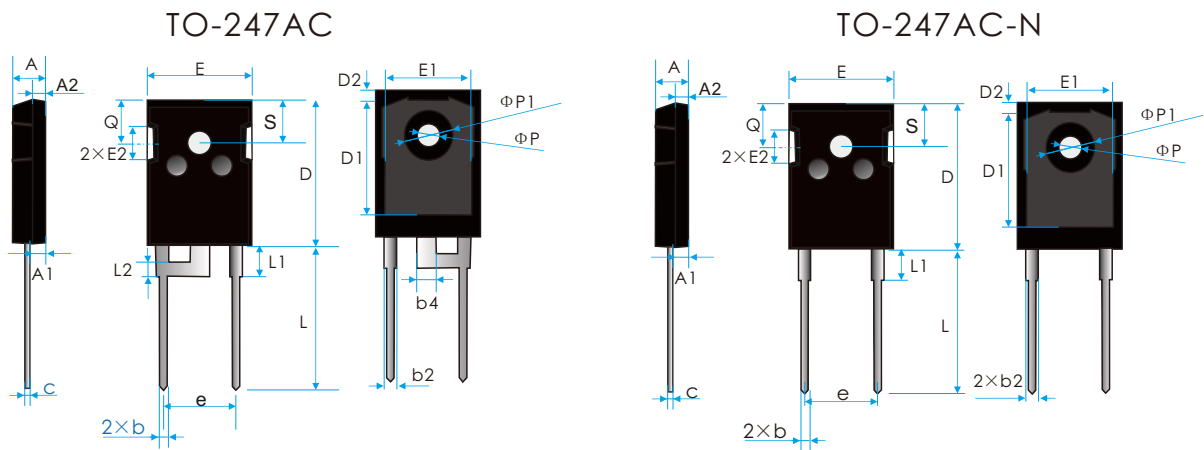
(4) Q_{rr} -area under curve defined by t_{rr} and I_{RRM}

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

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

Fig. 10 – Reverse Recovery Waveform and Definitions

PACKAGE OUTLINE DIMENSIONS



Symbol	millimeter		
	Min.	Typ.	MAX
A	4.70		5.30
A1	2.21		2.59
A2	1.50		2.49
D	20.30		20.70
E	15.48		16.24
E2	4.30		5.50
e		10.92	
L	19.80		20.30
L1	4.40		4.60
ΦP		3.50	
Q	5.38		6.19
S		6.14	
b	0.99		1.40
b2	1.65		2.39
b4	2.59		3.43
c	0.38		0.89
D1	13.07		
D2	0.51		1.35
E1	13.45		
ΦP1		7.20	
L2		2.10	