

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 °C/10 seconds at terminals
- Component in accordance to RoHS 2011/65/EU
- Meets MSL level 1
- **AEC-Q101 qualified and PPAP capable**



**HALOGEN
FREE**

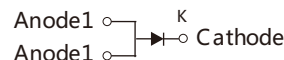
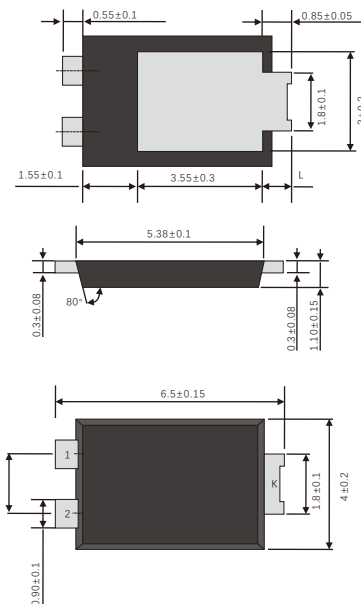
MECHANICAL DATA

- Case: TO-277 molded plastic body
- Terminals: Plated axial leads, solderable per MIL-STD-750, method 2026
- Mounting Position: Any
- Weight: 0.092 grams (approx)

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

TO-277



Dimensions in inches and (millimeters)

MAXIMUM RATINGS

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

Parameter	Symbol	Value	Unit
Maximum repetitive peak reverse voltage	V_{RRM}	200	V
Maximum average forward rectified current	$I_{F(AV)}$	4.0	A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC method at rated T _J)	I_{FSM}	150	A
Operating junction temperature range	T _J	-65 to +175	°C
Storage temperature range	T _{stg}	-65 to +175	°C

RATINGS AND CHARACTERISTIC OF MURP420L-V

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

Parameter	Test Conditions		Symbol	Min.	Typ.	Max.	Unit
Breakdown voltage Blocking voltage	IR=100μA		V_{BR} V_R	200	–	–	V
Instaneous forward voltage	T _J =25°C	IF=1.0A	$V_F^{1)}$	–	0.70	–	V
		IF=2.0A		–	0.75	–	
		IF=4.0A		–	0.81	0.85	
	T _J =125°C	IF=1.0A		–	0.55	–	
		IF=2.0A		–	0.61	–	
		IF=4.0A		–	0.68	–	
Reverse current	T _J =25°C	VR=200V	$I_R^{2)}$	–	0.1	2	μA
	T _J =100°C			–	0.6	-	μA
	T _J =125°C			–	2	10	
Junction capacitance	4V,1M Hz		C _J	–	110	-	pF

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

2.Pulse test: pulse width ≤40ms

DYNAMIC RECOVERY CHARACTERISTCS

Parameter	Test Conditions		Symbol	Min.	Typ.	Max.	Unit
Reverse recovery time	If=1.0A,dIf/dt=1A/μs,Vr=30V		trr	—	22	—	ns
	Tj=25°C	If=4A dIf/dt=200A/μS Vr=160V		—	22	—	
	Tj=125°C			—	28	—	
Peak recovery current	Tj=25°C		IRRM	—	2.5	—	A
	Tj=125°C			—	5	—	
Reverse recovery charge	Tj=25°C		Qrr	—	28	—	nc
	Tj=125°C			—	80	—	

RATINGS AND CHARACTERISTIC OF MURP420L-V

THERMAL CHARACTERISTICS

Parameter	Symbol	TO-277	Unit
Typical thermal resistance ³⁾	$R_{\theta JL}$	3.0	°C/W

3 Units mounted on recommended PCB 1 oz. Pad layout

AVAILABLE PACK INFORMATION

Product code	Pack	Reel Size (mm)	Quantity (pcs/reel)	Box Size L×W×H (mm)	Quantity (reel/carton)	Carton Size L×W×H (mm)	Quantity (box/carton)
MURP420L-V-TO-277	T/R	φ330	5000	338×338×40	2	365×365×360	7

FIG.1-FORWARD CURRENT DERATING CURVE

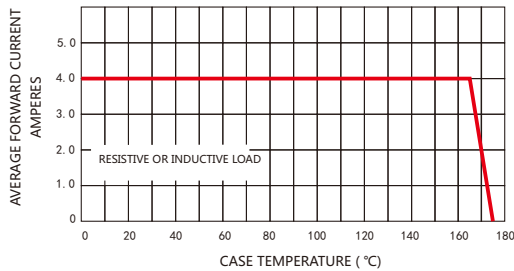
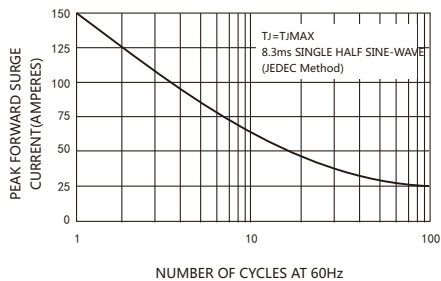


FIG.2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT



RATINGS AND CHARACTERISTIC OF MURP420L-V

FIG.3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

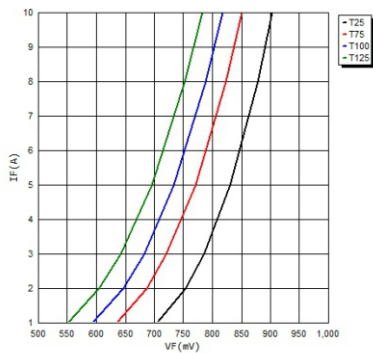


FIG.5-TYPICAL JUNCTION CAPACITANCE

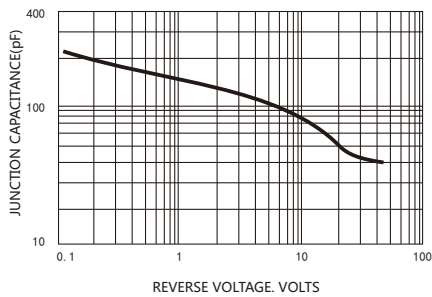


FIG.7-TYPICAL STORED CHARGE VS. dI_F/dt

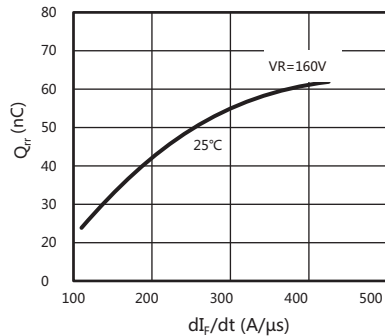


FIG.4-TYPICAL REVERSE CHARACTERISTICS

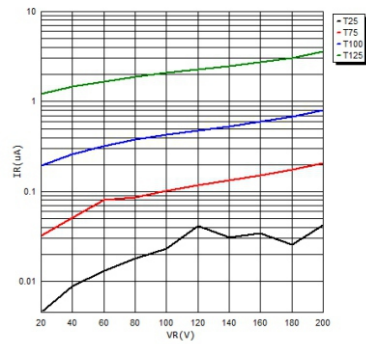


FIG.6- TYPICAL REVERSE RECOVERY TIME vs. dI_F/dt

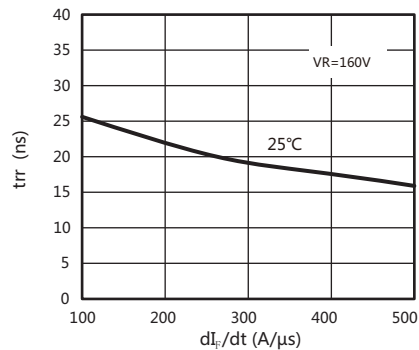
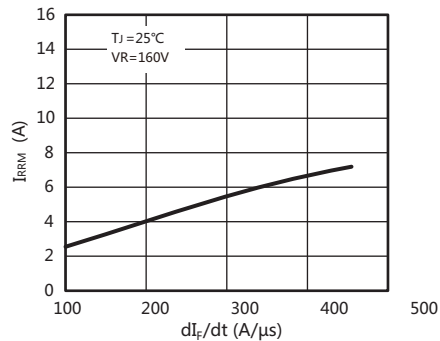
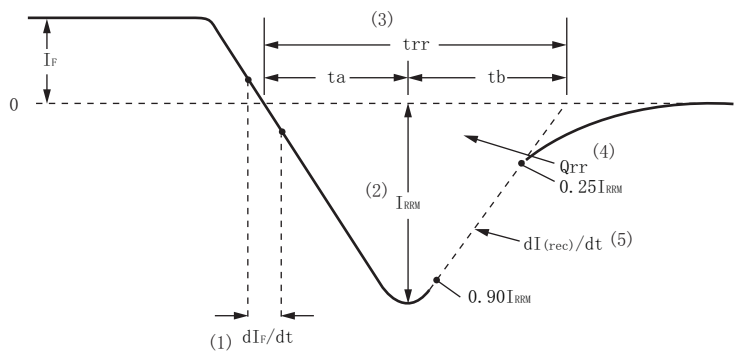


FIG.8- TYPICAL REVERSE RECOVERY CURRENT VS. dI_F/dt



RATINGS AND CHARACTERISTIC OF MURP420L-V



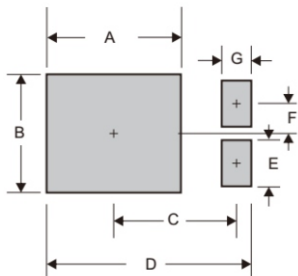
- (1) dI_F/dt -rate of change of current through zero crossing
 - (2) I_{rrm} -peak reverse recovery current
 - (3) t_{rr} - reverse recovery time measured from zero crossing point of negative going I_F to point where a line passing through $0.90I_{rrm}$ and $0.25I_{rrm}$ extrapolated to zero current
 - (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_r

Fig.9 - Reverse Recovery Waveform and Definitions

Suggested Pad

■ TO-277B foot print



A	B	C	D	E	F	G
0.185 (4.70)	0.142 (3.60)	0.152 (3.87)	0.260 (6.60)	0.055 (1.40)	0.035 (0.90)	0.031 (0.80)

Dimensions in inches and (millimeters)