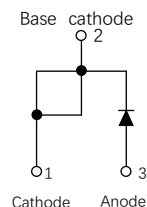


### FEATURES

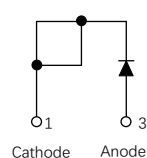
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Ultrafast Recovery Characteristics
- Low forward voltage drop
- Low Reverse Leakage Current
- Soft Recovery Characteristics
- High temperature soldering guaranteed:260°C/10 seconds,
- 0.25"(6.35mm)from case
- Component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



TO-220AC



ITO-220AC



### MECHANICAL DATA

- Case: JEDEC TO-220AC ITO-220AC 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

IF(AV)	20.0A
VR	600V
IFSM	150A
VF at IF=20.0A,125°C	1.60V
Trr typ	24ns
TJMAX	175°C
Diode variation	Single die

### MAXIMUM RATINGS

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

Parameter	Symbol	Value	Unit
Maximum repetitive peak reverse voltage	VRRM	600	V
Maximum average forward rectified current	IF(AV)	20.0	A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC method at rated TI)	IFSM	150	A
Operating junction temperature range	TJ	-55 to +175	°C
Storage temperature range	Tstg	-55 to +175	°C

## ELECTRICAL CHARACTERISTICS (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 1)	-	1.10	-	V
		IF=5.0A		-	1.70	-	
		IF=20.0A		-	2.02	2.50	
	Tj=125°C	IF=1.0A		-	0.65	-	
		IF=5.0A		-	1.00	-	
		IF=20.0A		-	1.60	-	
Reverse current	Tj=25°C	VR=600V	IR 2)	-	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	I <sub>F</sub> =0.5A,I <sub>R</sub> =1.0A, I <sub>rr</sub> =0.25A		t <sub>rr</sub>	-	24	30	ns
	T <sub>J</sub> =25°C	I <sub>F</sub> =7.5A dI <sub>F</sub> /dt=200A/μS V <sub>R</sub> =400V		-	38	-	
	T <sub>J</sub> =125°C			-	57	-	
Peak recovery current	T <sub>J</sub> =25°C		I <sub>RRM</sub>	-	2.8	-	A
	T <sub>J</sub> =125°C			-	4.6	-	
Reverse recovery charge	T <sub>J</sub> =25°C		Q <sub>rr</sub>	-	50	-	nC
	T <sub>J</sub> =125°C			-	105	-	

## THERMAL CHARACTERISTICS

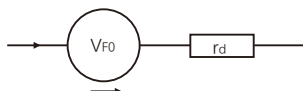
Parameter	Symbol	TO-220AC	ITO-220AC	Unit
Typical thermal resistance <sup>3)</sup>	$R_{\theta jc}$	2.5	4.5	°C/W

3.Thermal resistance from junction to case

## AVAILABLE PACK INFORMATION

Product code	Pack	Carton Size L×W×H(mm)	Inner Box Size L×W×H(mm)	Tube Length (mm)	Inner Box Number	Tube Number Per A Inner Box	Part Number Per A Tube	Quantity(carton) (K)
MURS2060- TO-220AC	Tube	565×225×170	548×151×37	540	5	20	50	5
MURFS2060- ITO-220AC	Tube	565×225×170	548×151×37	540	5	20	50	5

## Equivalent circuits for power loss calculation



$V_{F0}$ : threshold voltage 1.15V

$r_d$ : Dynamic resistance 0.06Ω

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

FIG.1-FORWARD CURRENT DERATING CURVE

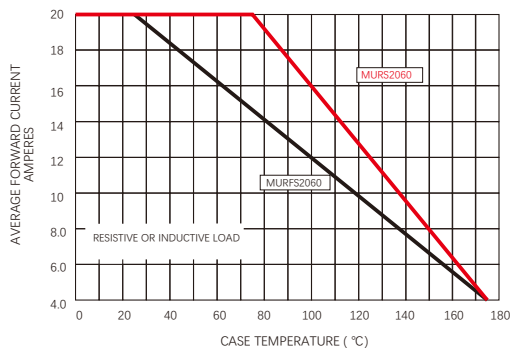


FIG.2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

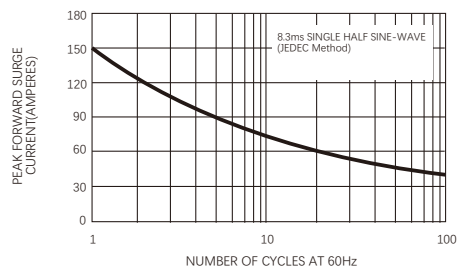


FIG.3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

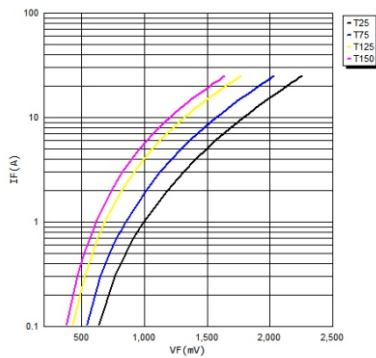


FIG.4-TYPICAL REVERSE CHARACTERISTICS

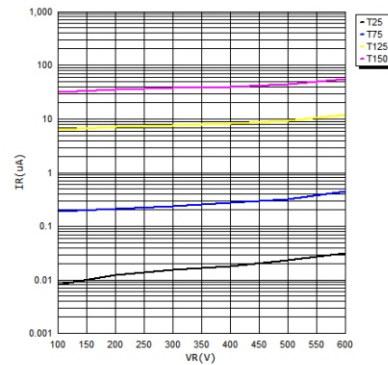


FIG.5-TYPICAL JUNCTION CAPACITANCE

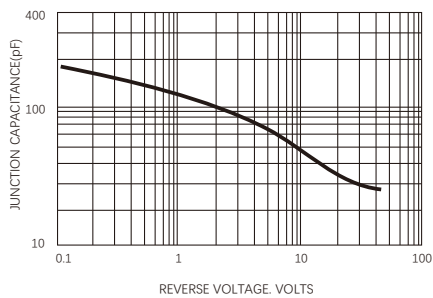


FIG.6- TYPICAL trr,ta,tb vs. FORWARD CURRENT

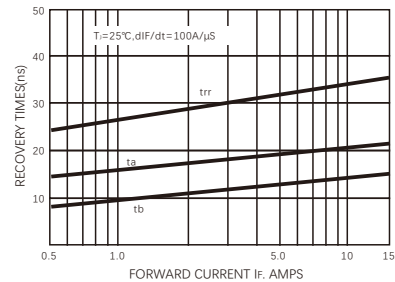
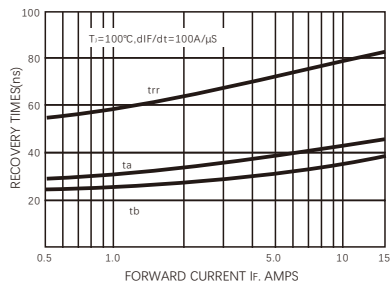
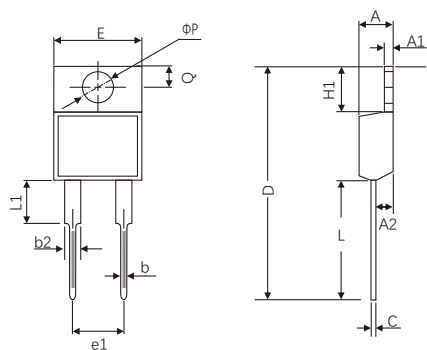


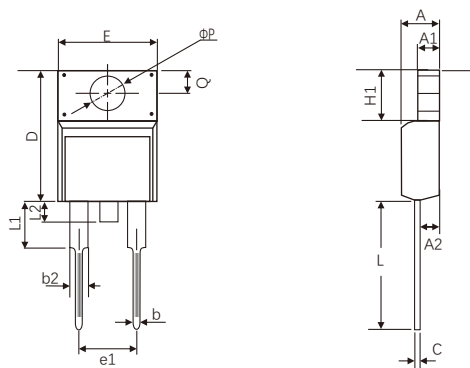
FIG.7- TYPICAL trr,ta,tb vs. FORWARD CURRENT



## TO-220AC



## ITO-220AC



Symbol	millimeter			inches		
	Min.	Typ.	MAX	Min.	Typ.	MAX
A	4.44		4.70	0.175		0.185
A1	1.14		1.39	0.045		0.055
A2	2.50		2.90	0.098		0.114
b	0.68		0.94	0.027		0.037
b2	1.20		1.34	0.047		0.053
C	0.35		0.58	0.014		0.023
D	28.10		29.50	1.106		1.161
E	9.85		10.42	0.388		0.410
e1	4.88		5.28	0.192		0.208
H1	6.20		7.20	0.244		0.283
L	13.00		14.22	0.512		0.560
L1	3.55		4.05	0.140		0.159
L2	-		-	-		-
$\Phi P$	3.74		4.10	0.147		0.161
Q	2.60		2.88	0.102		0.113

Symbol	millimeter			inches		
	Min.	Typ.	MAX	Min.	Typ.	MAX
A	4.49		4.89	0.177		0.192
A1	2.28		2.88	0.090		0.133
A2	2.50		2.90	0.098		0.114
b	0.67		0.93	0.026		0.037
b2	1.10		1.43	0.043		0.056
C	0.37		0.63	0.015		0.025
D	15.40		15.60	0.606		0.646
E	9.91		10.41	0.390		0.410
e1	4.88		5.28	0.192		0.208
H1	6.45		6.85	0.254		0.270
L	12.50		13.50	0.492		0.531
L1	2.45		3.45	0.096		0.136
L2	0.00		1.50	0.000		0.059
$\Phi P$	3.15		3.45	0.124		0.136
Q	3.05		3.45	0.120		0.136

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