

20A,400V Ultrafast Recovery Rectifier

Features

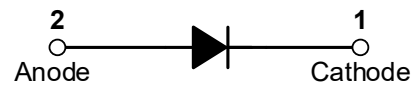
- FRED Wafer Construction
- Low forward drop voltage, low power loss
- High Surge Current Capability
- Plastic package has underwriters Laboratory Flammability Classification 94V-0
- Halogen-free according to IEC 61249-2-21



TO-220AC

Applications

- SMPS
- Lighting
- UPS



Mechanical Data

- Case: Epoxy, Molded
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 sec
- Shipped 50 units per plastic tube

Maximum Ratings & Electrical Characteristics (T_A=25°C unless otherwise noted)

Parameter	Symbol	MUR2040ST	Unit
Maximum repetitive peak reverse voltage	V _{RRM}	400	V
Working peak reverse voltage	V _{RWM}	400	V
Maximum DC blocking voltage	V _{DC}	400	V
Maximum average forward rectified current	I _{F(AV)}	20	A
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load	I _{FSM}	150	A
Voltage rate of change (rated V _R)	dv/dt	10000	V/uS
Operating junction temperature range	T _J	-55 to +150	°C
Storage temperature range	T _{STG}	-55 to +150	°C

Electrical Specifications ($T_A=25^{\circ}\text{C}$ unless otherwise noted)					
Parameter	Symbol	Test Conditions	Typ	Max	Unit
Forward drop voltage ^(Note1)	V_F	$I_F=20\text{A}, T_J=25^{\circ}\text{C}$	1.40	1.70	V
		$I_F=20\text{A}, T_J=125^{\circ}\text{C}$	-	1.40	
Reverse leakage current @ V_R ^(Note2)	I_R	$T_J=25^{\circ}\text{C}$	-	10	μA
		$T_J=100^{\circ}\text{C}$	-	500	
Reverse recovery time	t_{rr}	$I_F=0.5\text{A},$ $I_R=1.0\text{A}, I_{RR}=0.25\text{A}$	-	35	ns

Thermal-Mechanical Specifications ($T_A=25^{\circ}\text{C}$ unless otherwise noted)			
Parameter	Symbol	Typ	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	2.0	$^{\circ}\text{C}/\text{W}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	62.5	$^{\circ}\text{C}/\text{W}$

Note:

1. Pulse test with $PW=0.3\text{ms}$, duty cycle=2%
2. Pulse test with $PW=30\text{ms}$

Ratings and Characteristics Curves

($T_A = 25^\circ\text{C}$ unless otherwise noted)

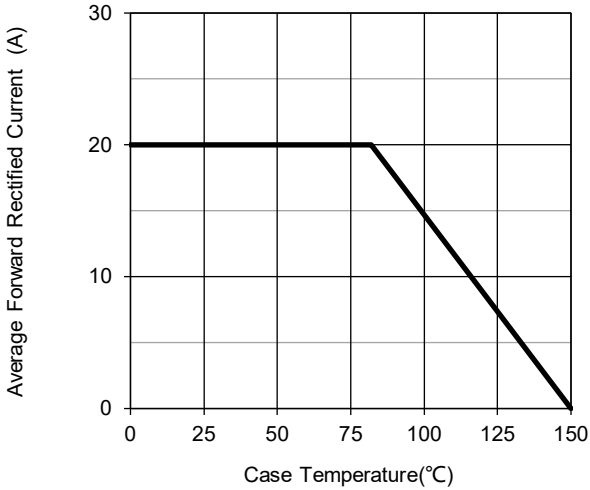


Fig.1 – Forward Current Derating Curve

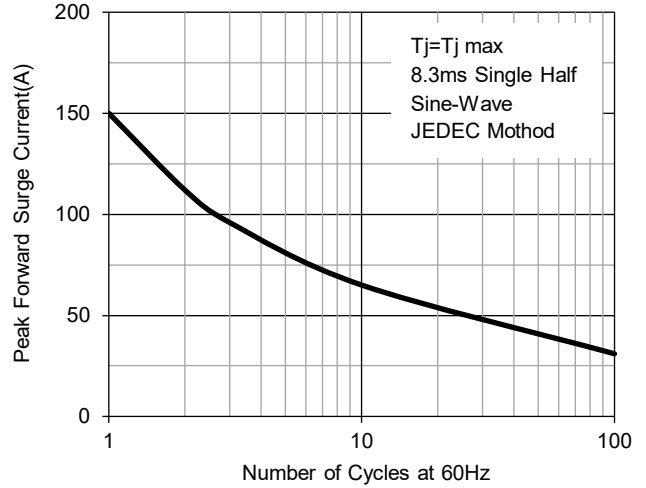


Fig.2 – Maximum Non-Repetitive Surge Current

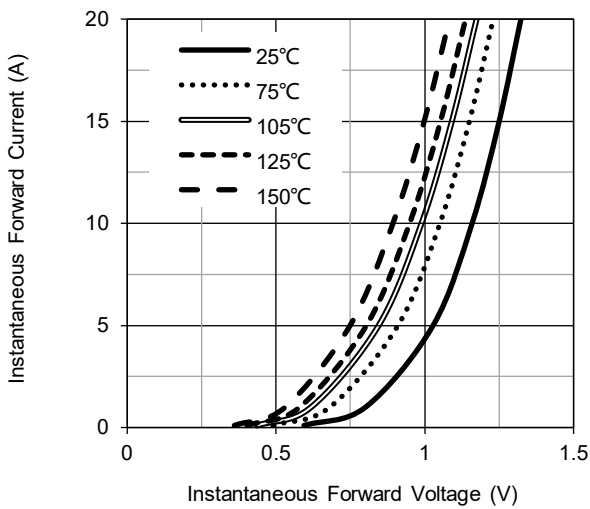


Fig.3 – Typical Forward Voltage Characteristics

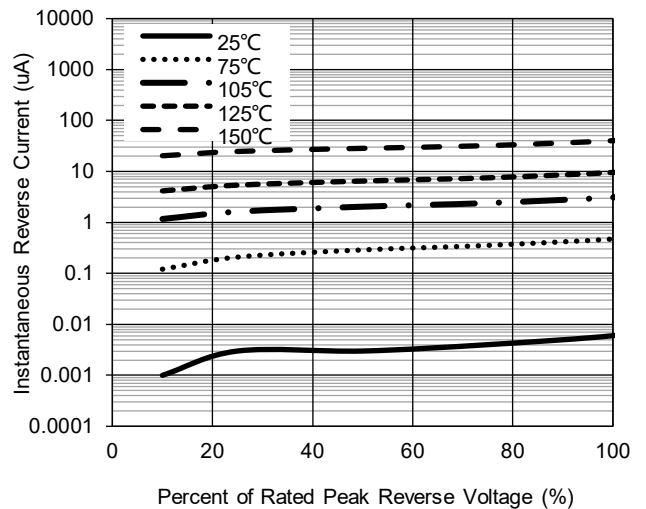


Fig.4 – Typical Reverse Current Characteristics

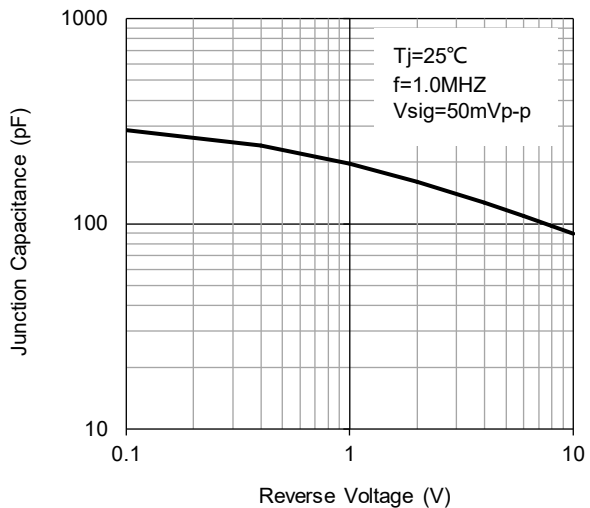
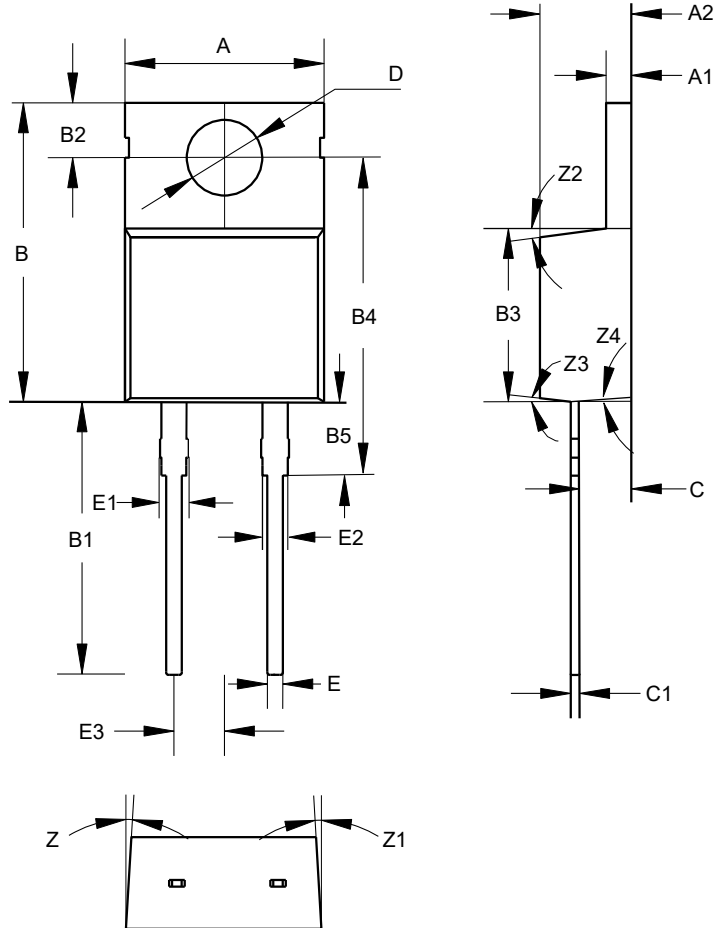


Fig.5 – Typical Junction Capacitance

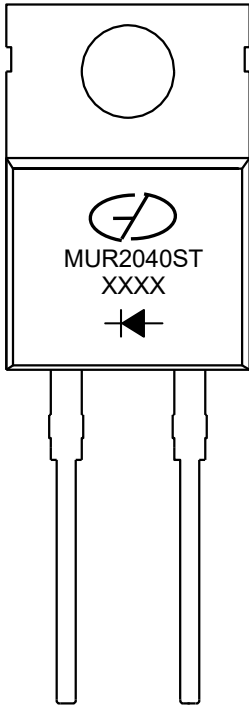
Package Outline Dimensions (Unit: millimeters)

TO-220AC



TO-220AC							
	Min.	Nom.	Max.		Min.	Nom.	Max.
A	9.8	10	10.2	D	3.7	3.8	3.9
A1	1.17	1.27	1.37	E	0.68	0.78	0.88
A2	4.5	4.6	4.7	E1	1.2	1.4	1.6
B	14.5	15	15.5	E2	1.17	1.27	1.37
B1	13.2	13.7	14.2	E3	2.44	2.54	2.64
B2	2.65	2.75	2.85	Z		3°	
B3	8.5	8.7	8.9	Z1		3°	
B4	15.5	16	16.5	Z2		7°	
B5	3.4	3.7	4.0	Z3		7°	
C	2.3	2.6	2.9	Z4		1.5°	
C1	0.28	0.38	0.48				

Marking Outline



1. Logo Mark: 
2. Part Name: MUR2040ST
3. Date Code: XXXX
4. Polarity : 

Revision History

Document Version	Date of release	Description of changes
Rev.A	2022.10.15	Preliminary Datasheet

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