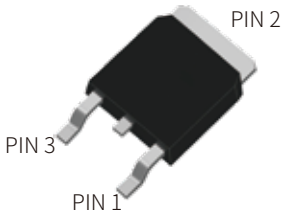
MUR1640CD

Ultra-Fast Recovery Rectifier Diode

FEATURES

- Adopt Fred Chip
- Low Forward Voltage Drop
- Fast Reverse Recovery Time
- High Frequency Operation
- High Purity, High Temperature Epoxy Encapsulation For Enhanced Mechanical Strength And Moisture Resistance
- Guard Ring For Enhanced Ruggedness And Long Term Reliability



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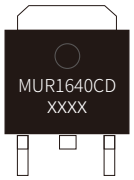
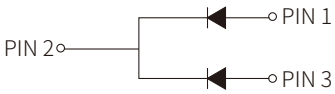


Marking

APPLICATIONS

- Typical Applications Are In Switching Power Supplies, Converters, Freewheeling Diodes, And Reverse Battery Protection



Schematic Symbol

APPROVALS

RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003

MAXIMUM RATINGS (T_A=25°C)

Parameter	Symbol	Value	Unit
Repetitive Peak Reverse Voltage	V_{RRM}	400	V
Average Rectified Output Current @60Hz sine wave, R-load, Tc(FIG.1)	I_o	16	A
Surge(Non-repetitive)Forward Current @60Hz half sine-wave, 1 cycle, Tj=25°C	I_{FSM}	100	A
Current Squared Time @1ms≤t≤8.3ms Tj=25°C	I^2t	41	A^2s
Typical Junction capacitance @4V,1MHz	C_j	40	pF
Thermal Resistance Between Junction and Case	$R_{\theta J-C}$	5	°C/W
Thermal Resistance Between Junction and Air	$R_{\theta J-A}$	50	°C/W
Junction Temperature	T_J	-55 to 175	°C
Storage Temperature	T_{STG}	-55 to 175	°C

ELECTRICAL CHARACTERISTICS(T_A=25°C)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Instantaneous Forward Voltage Drop Per Diode	V_{FM}	I_{FM}=8.0A@T_J=25°C		1.15	1.30	V
		I_{FM}=8.0A@T_J=150°C		0.9	1.0	
DC Reverse Current at Rated DC Blocking Voltage Per Diode	I_R	V_{RM}=V_{RRM},T_J=25°C			5	μA
		V_{RM}=V_{RRM},T_J=150°C		30	100	
Reverse Recovery Time	T_{rr}	I_F=0.5A I_{RM}=1A I_{RR}=0.25A T_j=25°C		25	35	ns
		I_F=8A,di/dt=-200A/μs V_{RM}=200V,T_j=25°C		33.3		
		I_F=8A,di/dt=-200A/μs V_{RM}=200V,T_j=125°C		54.5		
Peak Recovery Current	I_{RRM}	I_F=8A,di/dt=-200A/μs V_{RM}=200V,T_j=25°C		3.39		A
		I_F=8A,di/dt=-200A/μs V_{RM}=200V,T_j=125°C		6.17		
Reverse Recovery Charge	Q_{rr}	I_F=8A,di/dt=-200A/μs V_{RM}=200V,T_j=25°C		56.17		nC
		I_F=8A,di/dt=-200A/μs V_{RM}=200V,T_j=125°C		180		

CHARACTERISTIC CURVES

FIG1:Io -Tc Curve

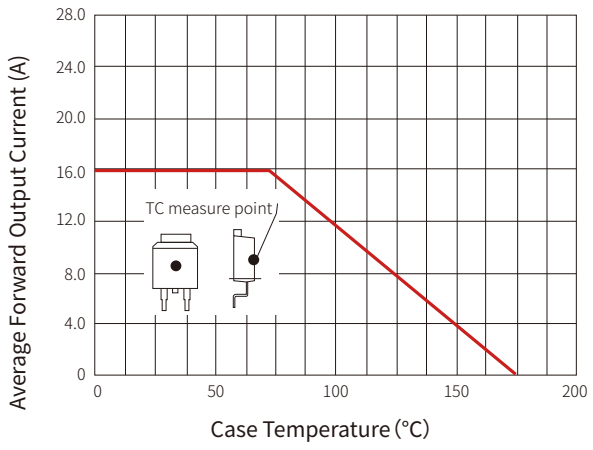


FIG2:Surge Forward Current Capability

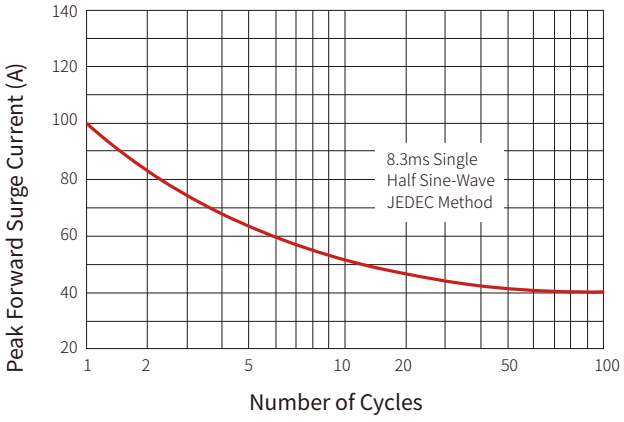


FIG3: Forward Voltage

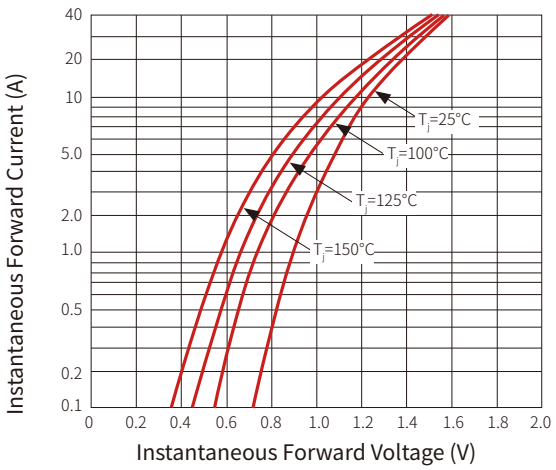


FIG.4: Instantaneous Reverse Characteristics

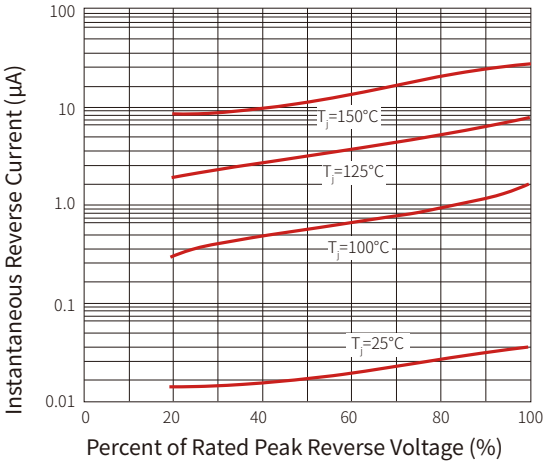
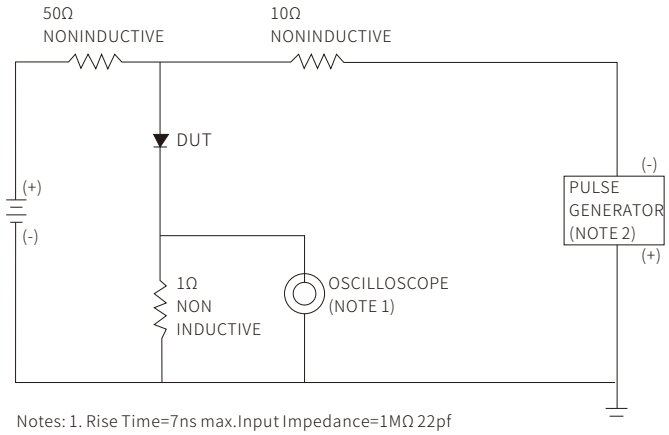
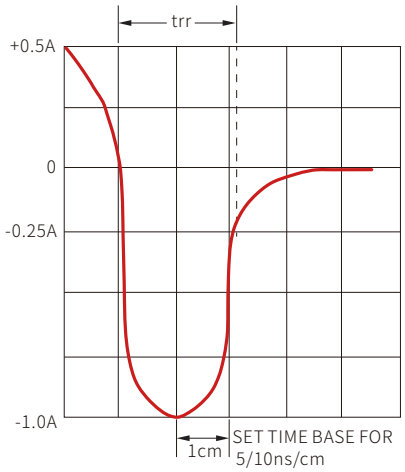


FIG.5: Diagram of circuit and Testing wave form of reverse recovery time

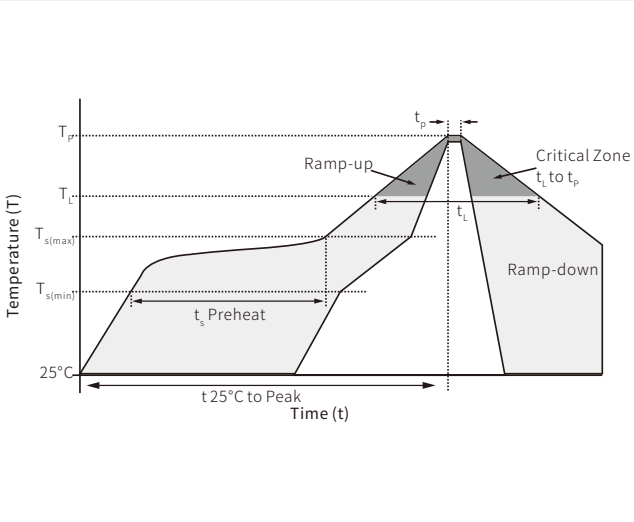


Notes: 1. Rise Time=7ns max.Input Impedance=1MΩ 22pf
2. Rise Time=10ns max. Sourse Impedance=50Ω

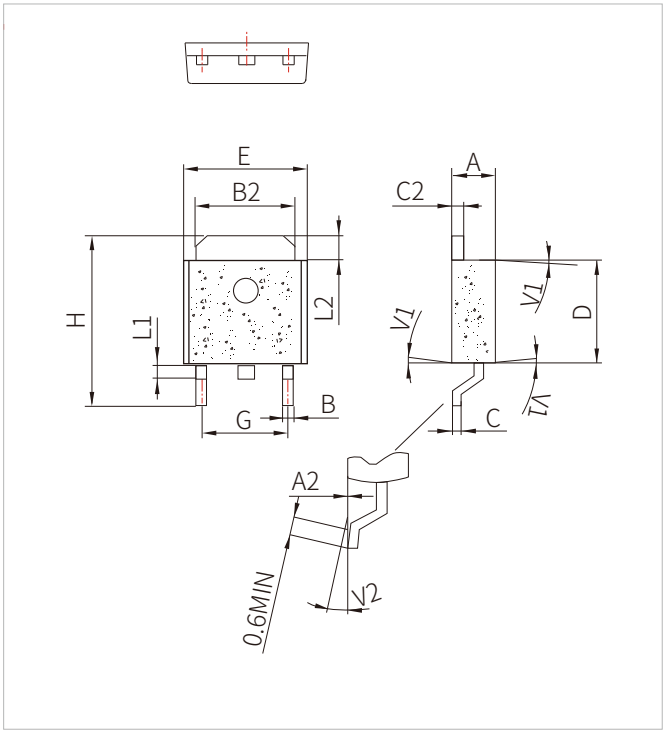


SOLDERING PARAMETERS

Reflow Condition		Lead–free assembly
Pre Heat	Temperature Max ($T_{s(min)}$)	150°C
	Temperature Max ($T_{s(max)}$)	200°C
	Time (min to max) (t_s)	60 – 180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak		3°C/second max
	$T_{S(max)}$ to T_L - Ramp-up Rate	3°C/second max
Reflow	Temperature (T_L) (Liquidus)	217°C
	Time (min to max) (t_L)	60 – 150 seconds
Peak Temperature (T_P)		260°C
Time within 5°C of actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes max.
Do not exceed		260°C



TO-252 PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.10		2.50	0.083		0.098
A2	0.03		0.23	0.001		0.009
B	0.55		0.65	0.022		0.026
B2	5.10		5.40	0.200		0.213
C	0.45		0.62	0.018		0.024
C2	0.48		0.62	0.019		0.024
D	6.00		6.20	0.236		0.244
E	6.40		6.80	0.252		0.268
G	4.40		4.70	0.173	0.1	0.185
H	9.35		10.7	0.368		0.421
L1	1.30		1.70	0.051	0.143	0.067
L2	1.37		1.50	0.054		0.059
V1		4°			0.130	
V2	0°		8°	0°		8°

ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
MUR1640CD	TO-252	2500PCS	13”

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