



MT SERIES

THREE PHASE BRIDGE

Power Modules

Features

- Universal, 3 way terminals:
push-on, wrap around or solder
- High thermal conductivity package,
electrically insulated case
- Center hole fixing
- Excellent power/volume ratio
- Terminals Solderable as per MIL-STD-202 METHOD 208,
solder: Sn/Pb (60/40); solder temperature: 235-260°C mx. time: 8-10 sec.

35 A
50 A

Description

A range of extremely compact, encapsulated three phase bridge rectifiers offering efficient and reliable operation. They are intended for use in general purpose and instrumentation applications.

Major Ratings and Characteristics

Parameters	MT35	MT50	Units
I_O	35	50	A
@ T_C	70	60	°C
I_{FSM} @ 50Hz	360	475	A
@ 60Hz	375	500	A
I^2t @ 50Hz	635	1130	A ² s
@ 60Hz	580	1030	A ² s
V_{RRM} range	100 to 1600		V
T_J	-55 to 150		°C

ELECTRICAL SPECIFICATIONS

Voltage Ratings

Type number	Voltage Code	V_{RRM} , maximum repetitive peak reverse voltage V	V_{RSM} , maximum non-repetitive peak rev. voltage V	I_{RRM} max. @ T_J max. mA
MT35/50	01A	100	150	2
	02A	200	275	
	04A	400	500	
	06A	600	725	
	08A	800	900	
	10A	1000	1100	
	12A	1200	1300	
	14A	1400	1500	
	16A	1600	1700	

Forward Conduction

Parameters	MT35	MT5	Units	Conditions
I_O Maximum DC output current @ T_C	35	50	A	120° Rect Conduction angle
	70	60	°C	
I_{FSM} Maximum peak, one-cycle non-repetitive forward current Initial $T_J = T_J$ max.	360	475	A	t = 10ms No voltage
	375	500		t = 8.3ms reapplied
	300	400		t = 10ms 100% V_{RRM}
	314	420		t = 8.3ms reapplied
I^2t Maximum I^2t for fusing Initial $T_J = T_J$ max.	635	1130	A ² s	t = 10ms No voltage
	580	1030		t = 8.3ms reapplied
	450	800		t = 10ms 100% V_{RRM}
	410	730		t = 8.3ms reapplied
$I^2\sqrt{t}$ Maximum $I^2\sqrt{t}$ for fusing	6360	11300	A ² √s	I^2t for time $t_x = I^2\sqrt{t_x} \sqrt{t_x}$; $0.1 \leq t_x \leq 10ms$, $V_{RRM} = 0V$
$V_{F(TO)1}$ Low-level of threshold voltage	0.88	0.86	V	$(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$, @ T_J max.
$V_{F(TO)2}$ High-level of threshold voltage	1.13	1.03	V	$(I > \pi \times I_{F(AV)})$, @ T_J max.
r_{t1} Low-level forward slope resistance	7.9	6.3	mΩ	$(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$, @ T_J max.
r_{t2} High-level forward slope resistance	5.2	5.0		$(I > \pi \times I_{F(AV)})$, @ T_J max.
V_{FM} Maximum forward voltage drop	1.26	1.19	V	$T_J = 25^\circ C$, $I_{FM} = 40A_{pk}$ - Per single Junction
I_{RRM} Max. DC reverse current	100		μA	$T_J = 25^\circ C$, per Junction at rated V_{RRM}
V_{INS} RMS isolation voltage	2700		V	$T_J = 25^\circ C$, All terminal shorted f = 50Hz, t = 1s

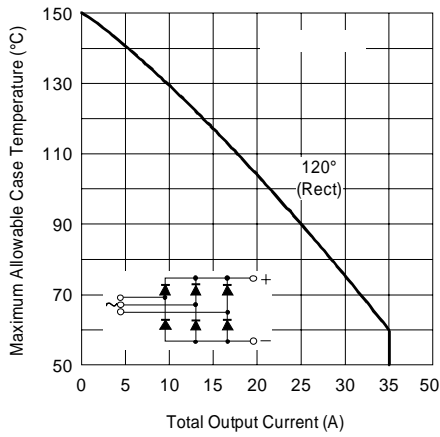


Fig. 6 - Current Ratings Characteristics

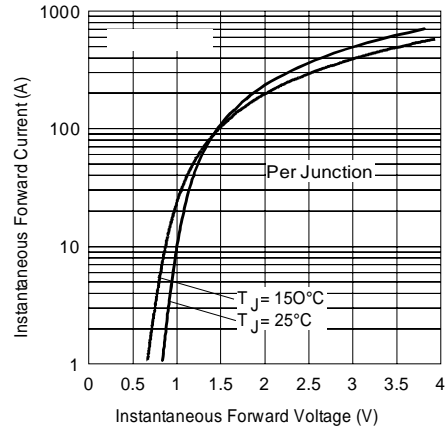


Fig. 7 - Forward Voltage Drop Characteristics

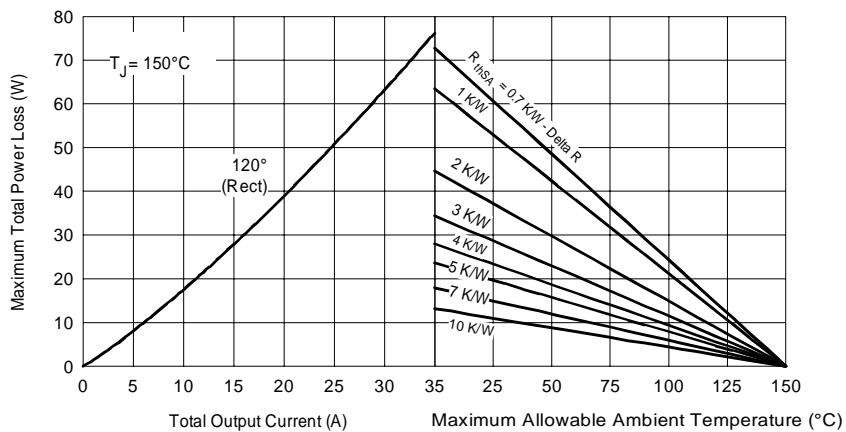


Fig. 8 - Total Power Loss Characteristics

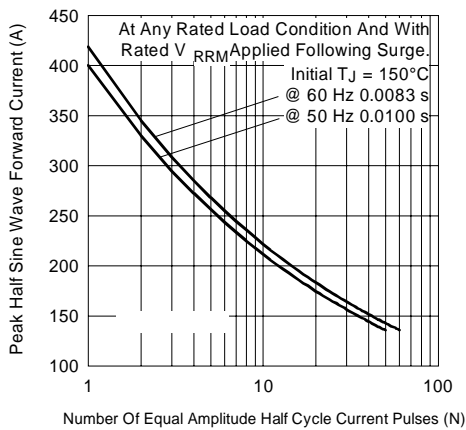


Fig. 9 - Maximum Non-Repetitive Surge Current

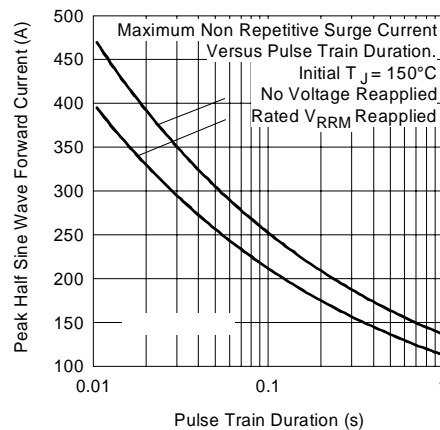


Fig. 10 - Maximum Non-Repetitive Surge Current

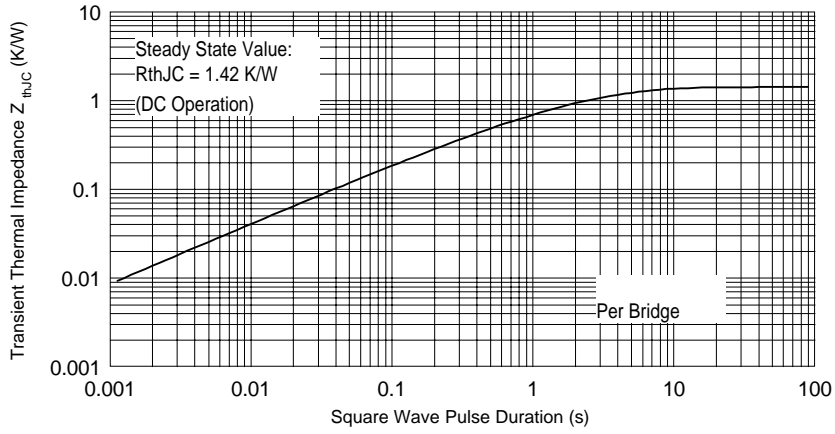


Fig. 11 - Thermal Impedance Z_{thJC} Characteristics

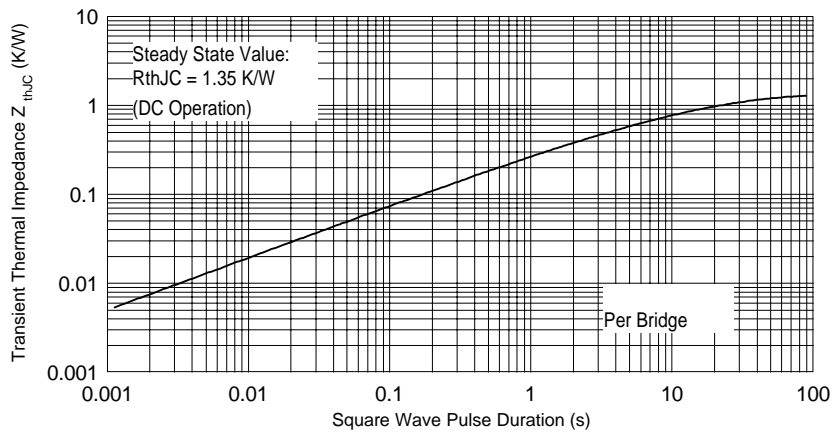


Fig. 12 - Thermal Impedance Z_{thJC} Characteristics

Thermal and Mechanical Specifications

Parameter	MT35	M50	Units	Conditions		
T _J	Max. junction temperature range		-55 to 150	°C		
T _{stg}	Max. storage temperature range		-55 to 150	°C		
R _{thJC}	Max. thermal resistance junction to case		1.42	1.35	K/W	DC operation per bridge (Based on total power loss of bridge)
R _{thCS}	Max. thermal resistance, case to heatsink		0.2	0.2	K/W	Mounting surface, smooth, flat and greased
wt	Approximate weight		20		g	
T	Mounting Torque ± 10%		2.0		Nm	Bridge to heatsink with screw M4

Ordering Information Table

Device Code

MT

50

10A

①

②

③

1 - Basic part number

2 - Current rating code: 35 = 35A (Avg)

3 - Voltage code (code x 10 = V_{RRM}) 50 = 50A (Avg)

Outline Table

6.3 x .8 (.25 x .03)

10
(.39)

23 (.90)

21 (.83)

25.3 (.99) MAX

16 (.63)

5.2 (.20)

28.5 (1.12)

Not To Scale

Suggested plugging force:
400 N max; axially applied to faston terminals

All dimensions in millimeters (inches)