

## MDS Series

### Three-Phase Rectifier Bridges



Picture of 30-100A

- Ratings from 10A to 200A @ 12-1600 VAC
- 2500 Volts isolated mounting base
- Strengthened current design for reliable industrial operations
- CE approved, EMC compliant.
- International standard package
- High thermal conductivity package, electrically insulated case
- Standard size for easy connections to thyristor & IGBT Modules

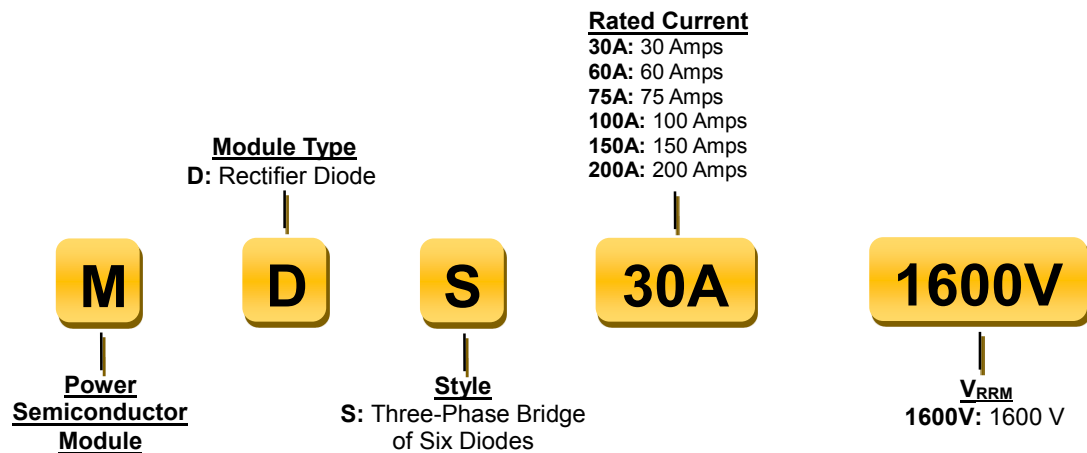
### Typical Applications

- Supplies for DC power equipment
- DC supplies for PWM inverter
- DC power supplies for battery
- Field Supplies for DC motors
- Soft start capacitor charging
- Electric drives and auxiliaries
- Inverter Welders
- Input Rectifiers for Switch mode power supply (SMPS)

### PRODUCT SELECTION

Control Voltage	30A	60A	75A	100A	150A	200A
90-280 VAC	MDS30A1600V	MDS60A1600V	MDS75A1600V	MDS100A1600V	MDS150A1600V	MDS200A1600V

### MODEL NAME DEFINITIONS



## ELECTRICAL SPECIFICATIONS <sup>(1)</sup>

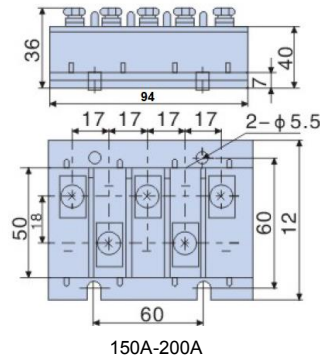
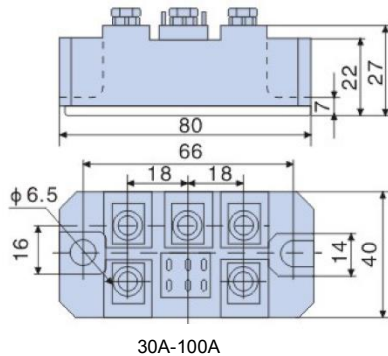
Description		30A	60A	75A
$I_O$	DC Output Current @ $T_J=150^{\circ}\text{C}$ [Arms]	30	75	60
$I_{RRM}$	Max. Repetitive Peak Reverse Current [mArms]	10	10	10
$I_{FSM}$	Max. Peak, 1-Cycle Forward, Non-Repetitive Surge Current @ No Voltage Reapplied (10/8.3mSec) [Arms]	191/231	477/582	382/463
	Max. Peak, 1-Cycle Forward, Non-Repetitive Surge Current @ 100% $V_{RRM}$ Reapplied (10/8.3mSec) [Arms]	160/194	401/489	321/389
$I^2t$	Max. $I^2t$ for Fusing @ No Voltage Reapplied (50/60Hz) [ $\text{A}^2 \text{sec}$ ]	182/221	1137/1405	729/889
	Max. $I^2t$ for Fusing @ 100% $V_{RRM}$ Reapplied (50/60Hz) [ $\text{A}^2 \text{sec}$ ]	128/156	804/992	515/627
$V_{FM}$	Forward Voltage Drop @ $I_{PK}=150$ Arms [Vrms]	1.47	1.37	1.4
$V_{TM}$	Peak On-Stage Voltage [Vrms]	1.5	1.5	1.5
$R_{th(j-c)}$	Max. Thermal Resistance, Junction to Case [K/W]	2.03	0.70	0.70
$R_{th(c-h)}$	Max. Thermal Resistance, Case to Heatsink [K/W]	0.1	0.1	0.1
wt	Weight (Typical) [Gram]	185	173	188

Description		100A	150A	200A
$I_O$	DC Output Current @ $T_J=150^{\circ}\text{C}$ [Arms]	100	150	200
$I_{RRM}$	Max. Repetitive Peak Reverse Current [mArms]	10	10	10
$I_{FSM}$	Max. Peak, 1-Cycle Forward, Non-Repetitive Surge Current @ No Voltage Reapplied (10/8.3mSec) [Arms]	637/777	952/1162	1327/1555
	Max. Peak, 1-Cycle Forward, Non-Repetitive Surge Current @ 100% $V_{RRM}$ Reapplied (10/8.3mSec) [Arms]	535/653	799/976	1071/1305
$I^2t$	Max. $I^2t$ for Fusing @ No Voltage Reapplied (50/60Hz) [ $\text{A}^2 \text{sec}$ ]	2028/2505	4531/5603	8804/10034
	Max. $I^2t$ for Fusing @ 100% $V_{RRM}$ Reapplied (50/60Hz) [ $\text{A}^2 \text{sec}$ ]	1431/1769	3192/3953	5735/7067
$V_{FM}$	Forward Voltage Drop @ $I_{PK}=150$ Arms [Vrms]	1.35	1.32	1.3
$V_{TM}$	Peak On-Stage Voltage [Vrms]	1.5	1.5	1.5
$R_{th(j-c)}$	Max. Thermal Resistance, Junction to Case [K/W]	0.55	0.42	0.35
0.29	0.24	0.05	0.05	0.05
wt	Weight (Typical) [Gram]	187	422	425

## GENERAL SPECIFICATIONS <sup>(1)</sup>

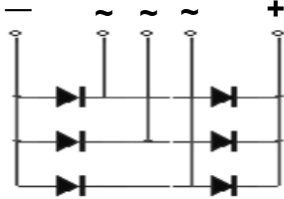
Description	Parameters
$V_{RRM}$ Max. Repetitive Peak Reverse Voltage [Vrms]	1600
$V_{RSM}$ Max. Repetitive Non-Peak Reverse Voltage [Vrms]	1760
$V_{INS}$ RMS Isolation Voltage to Case/Base	2500
$V_{F(TO)}$ Threshold Voltage @ $150^{\circ}\text{C}$ [Vrms]	0.81-0.99
$r_f$ Forward Slope Resistance @ $150^{\circ}\text{C}$ [mOhm]	4.37-6.8
$T_J$ Max. Junction Operating Temperature Range	-40 to $125^{\circ}\text{C}$
$T_{stg}$ Max. Storage Temperature Range	-40 to $125^{\circ}\text{C}$
cmatl Case Material	UL 94 V-0
tmatl Terminal Material	Nickelage

## MECHANICAL SPECIFICATIONS

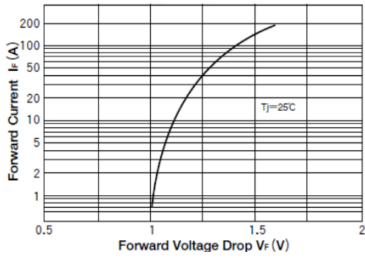


Unit of Length: Millimeters

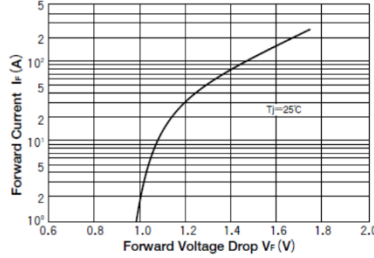
**EQUIVALENT CIRCUIT BLOCK DIAGRAM**



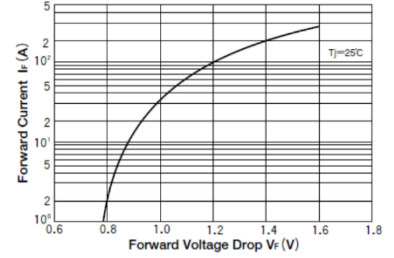
**Maximum Forward Characteristics**



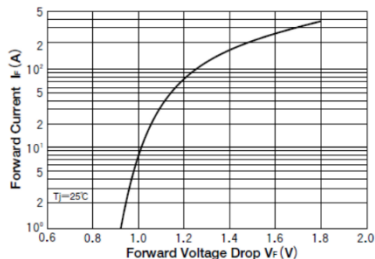
60A



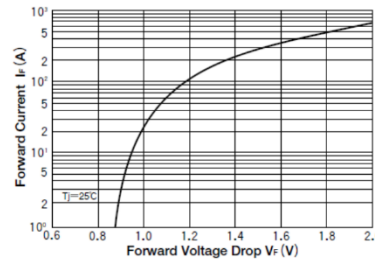
75A



100A

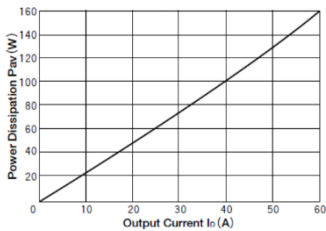


150A

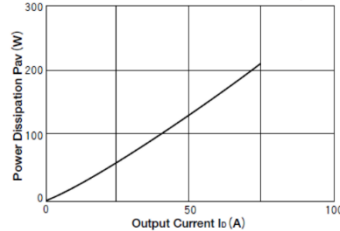


200A

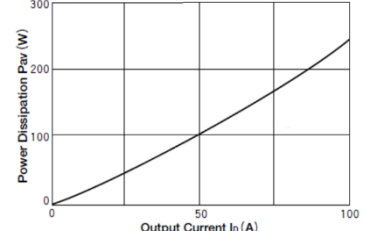
**Output Current vs. Power Dissipation of Three Phases**



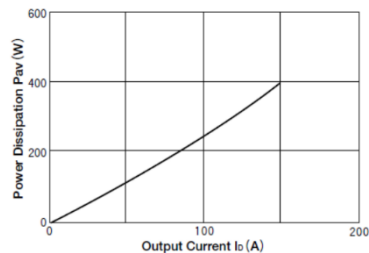
60A



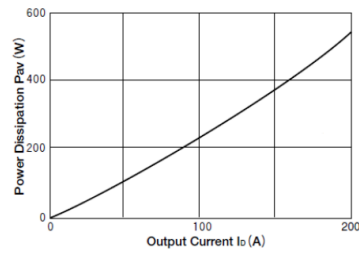
75A



100A

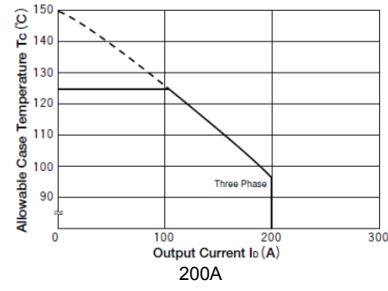
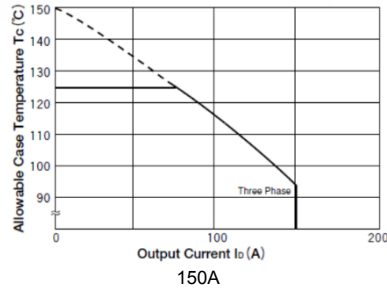
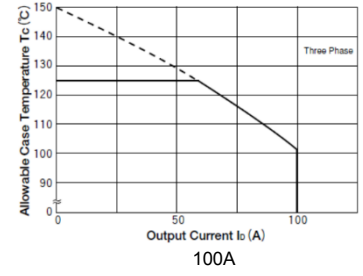
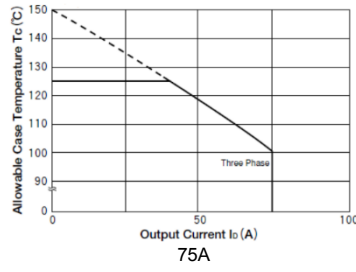
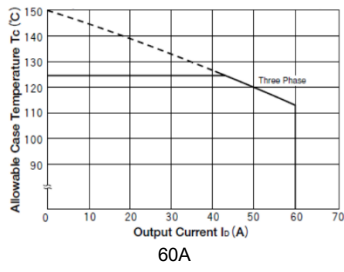


150A

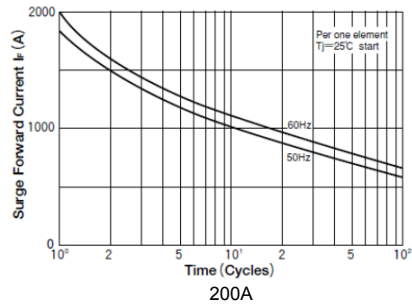
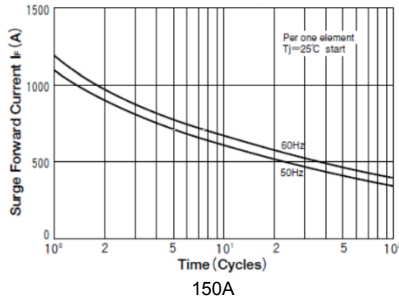
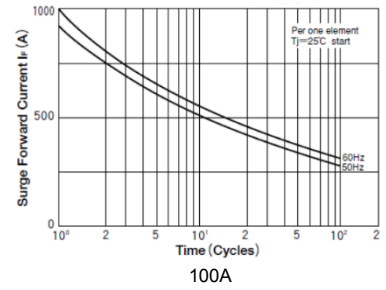
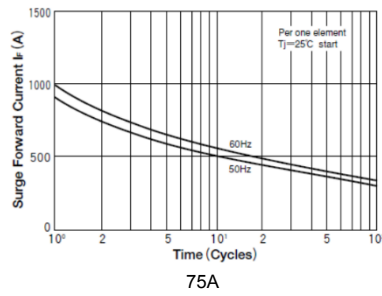
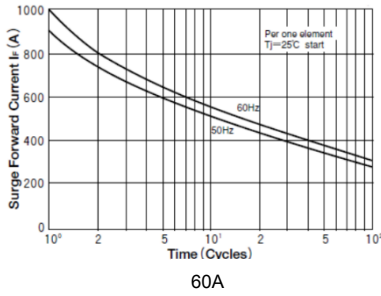


200A

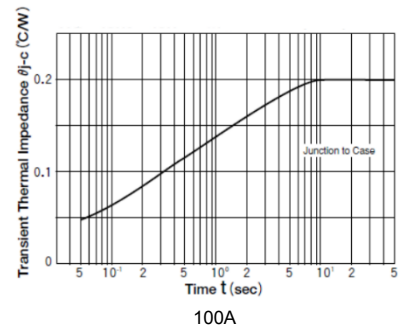
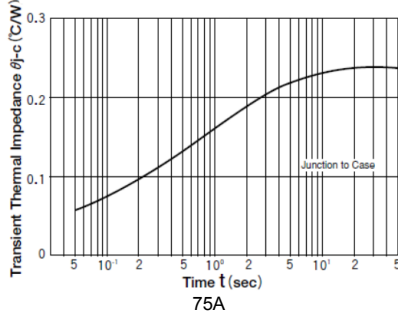
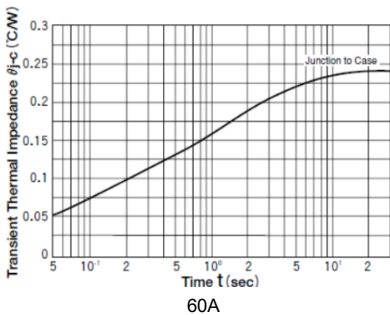
**Direct Current of Three Phases vs. Allowable Case Temperature**

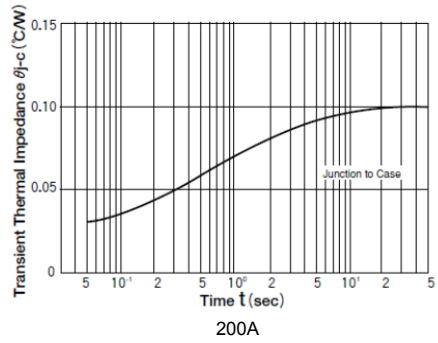
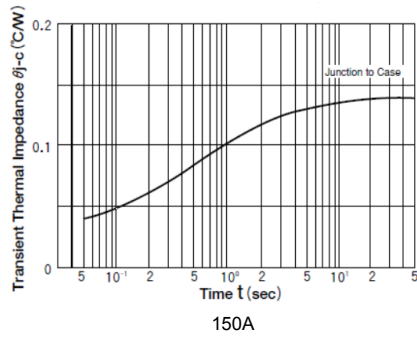


**Cycle Surge Forward Current vs. Time**



**Transient Thermal Impedance vs. Time**





### GENERAL NOTES

- (1) All parameters at 25°C and per section unless otherwise specified.
- (2) Heat sinking required.

### AGENCY APPROVALS

Designed in accordance with the requirements of IEC 62314

