

**Rectifier Module Circuit Series- Package A**



**Agency Approvals**

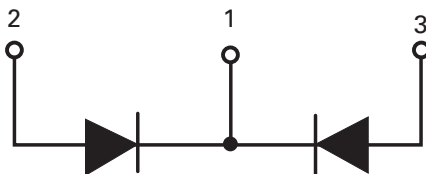
AGENCY	AGENCY FILE NUMBER
	E71639

**Circuit Diagram**

B type



DK type



**Features**

- Low reverse recovery loss
- Low forward voltage
- High surge current capability
- Low inductance package

**Applications**

- Field supply for DC motors
- Line rectifiers for transistorized AC motor controllers
- Non-controllable rectifiers for AC/DC converter

**Main Features**

Symbol	Value	Unit
$I_{F(AV)}$	90 to 110	A
$V_{RRM}$	1600 to 1800	V
$V_{RSM}$	1700 to 1900	V

**Absolute Maximum Rating ( $T_c = 25^\circ\text{C}$ , unless otherwise specified)**

Symbol	Parameters		Value	Unit
$V_{RRM}$	Repetitive Peak Reverse Voltage	MD16xxxA	1600	V
		MD18xxxA	1800	
$V_{RSM}$	Non-Repetitive Peak Reverse Voltage	MD16xxxA	1700	V
		MD18xxxA	1900	

### Absolute Maximum Ratings ( $T_c = 25^\circ\text{C}$ , unless otherwise specified)

Symbol	Parameters	Test Conditions	Values		Unit
			MDxx90A	MDxx110A	
$I_{F(AV)}$	Average Forward Current	Single phase, half wave 180°C conduction, $T_c=85^\circ\text{C}$	90	110	A
$I_{F(RMS)}$	RMS Forward Current		141	170	A
$I_{FSM}$	Non-Repetitive Surge Forward Current	$T_c=45^\circ\text{C}$ , 50Hz, Single wave	2000	2500	A
		$T_c=45^\circ\text{C}$ , 60Hz, Single wave	2200	2700	
$I^2t$	$I^2t$ (For Fusing)	$T_c=45^\circ\text{C}$ , 50Hz, Single wave	20.0	31.2	KA <sup>2</sup> s
		$T_c=45^\circ\text{C}$ , 60Hz, Single wave	20.1	30.2	
$P_D$	Power Dissipation		310	410	W
$T_J$	Junction Temperature		-40 to +150		$^\circ\text{C}$
$T_{STG}$	Storage Temperature Range		-40 to +125		$^\circ\text{C}$
$V_{ISOL}$	Insulation Test Voltage	AC, 50Hz, t=1min	3000		V

### Electrical and Thermal Specifications ( $T_c = 25^\circ\text{C}$ , unless otherwise specified)

Symbol	Parameters	Test Conditions	Min	Typ	Max	Unit
$I_{RM}$	Reverse Leakage Current	$V_R=V_{RRM}$	-	-	500	$\mu\text{A}$
		$V_R=V_{RRM}, T_J=125^\circ\text{C}$	-	-	10	mA
$V_F$	Forward Voltage	MDxx90A $I_F=280\text{A}$	-	-	1.6	V
		MDxx110A $I_F=350\text{A}$	-	-	1.6	
$V_{TO}$	For power-loss calculations only $T_J=125^\circ\text{C}$	MDxx90A	-	-	0.85	V
		MDxx110A	-	-	0.8	
$r_T$		MDxx90A	-	-	2.9	m $\Omega$
		MDxx110A	-	-	2.4	

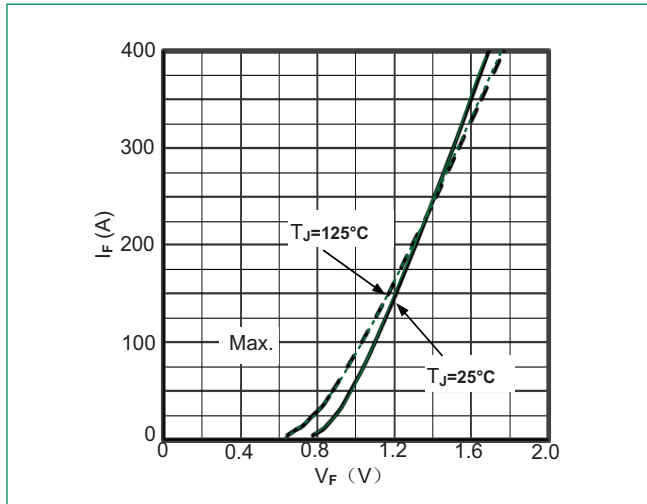
### Mechanical Characteristics

Symbol	Parameters	Test Conditions	Min	Typ	Max	Unit
Torque	Module-to-Sink	Recommended (M6)	3		5	N·m
Torque	Module Electrodes	Recommended (M6)	2.5		5	N·m

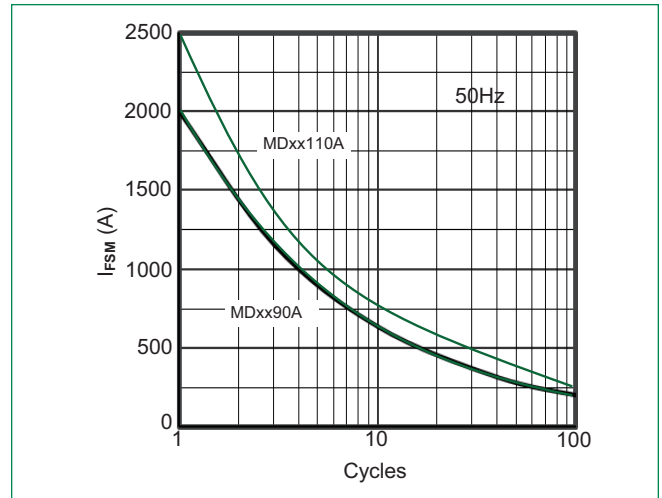
### Electrical and Thermal Specifications ( $T_c = 25^\circ\text{C}$ , unless otherwise specified)

Symbol	Parameters	Test Conditions	Max	Unit
$R_{thJC}$	Junction-to-Case	MDxx90A	0.4	K/W
		MDxx110A	0.3	

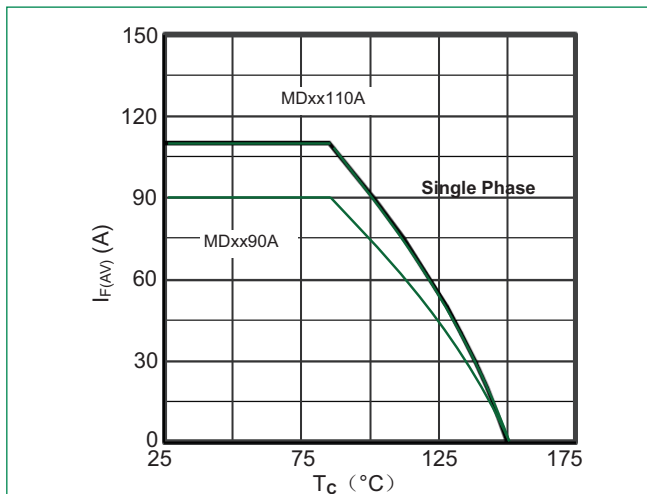
**Figure 1: Forward current vs.voltage drop**



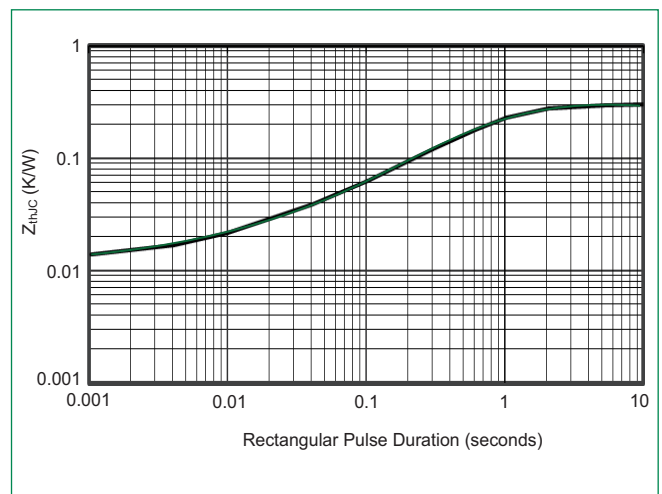
**Figure 2: Max Non-Repetitive Forward Surge Current**



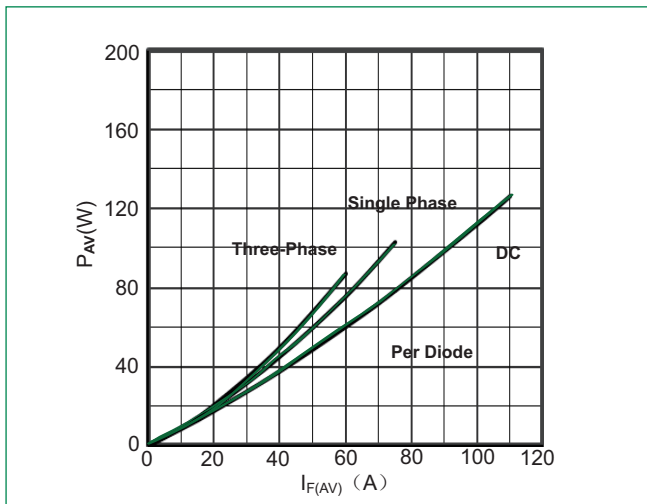
**Figure 3: Forward current vs. Case temperature**



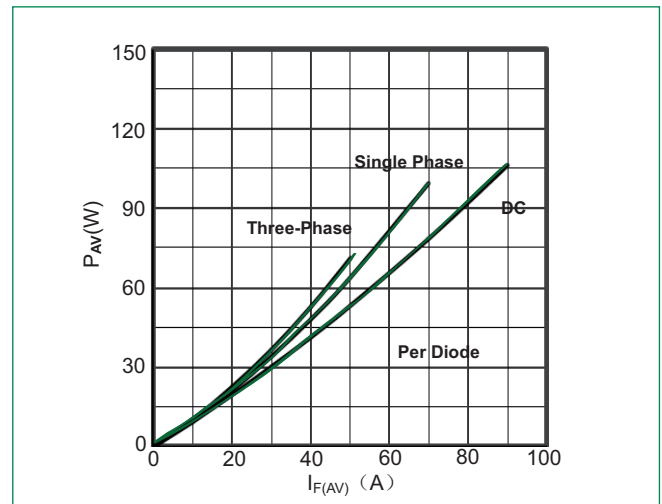
**Figure 4: Transient Thermal Impedance**



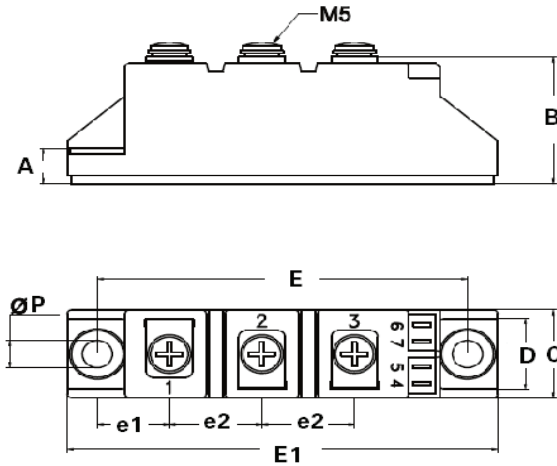
**Figure 5: Power dissipation vs.  $I_{F(AV)}$  for MDxx90A**



**Figure 5: Power dissipation vs.  $I_{F(AV)}$  for MDxx110A**



### Dimensions-Package A



Dimension	Inches		Millimeters	
	Max	Max	Min	Max
A	0.315	0.354	8.0	9.0
B	1.177	1.217	29.9	30.9
C	0.807	0.846	20.5	21.5
D	0.650	0.689	16.5	17.5
E	3.110	3.189	79.0	81.0
E1	3.622	3.700	92.0	94.0
e1	0.594	0.634	15.1	16.1
e2	0.768	0.807	19.5	20.5
P	0.236	0.276	6.0	7.0

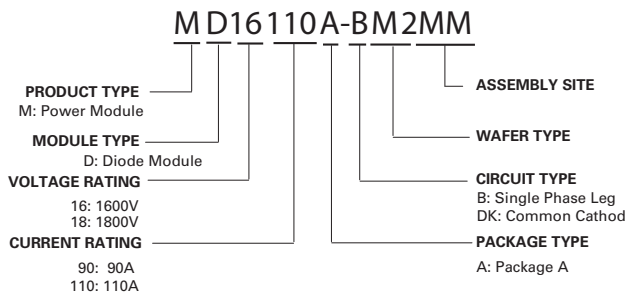
### Packing Selector

Part Number	$V_{RRM}$		$I_{F(AV)}$	Circuit Type	Package
	1600V	1800V			
MDxx90A-BM2MM	X	X	90A	B	A
MDxx90A-DKM2MM	X	X		DK	
MDxx110A-BM2MM	X	X	110A	B	
MDxx110A-DKM2MM	X	X		DK	

### Packing Options

Part Number	Marking	Weight	Packing Mode	M.O.Q.
MDxxxxxA-xM2MM	MDxxxxxA-xM2MM	110g	Bulk Pack	70

### Part Numbering System



### Part Marking System

