

# POWERBLOCK MODULES

## THYRISTOR MODULES

$I_T(AV)$ per Device	25A (Note 1)	55A (Note 1)	65A (Note 1)	90A (Note 1)	95A (Note 1)	160A (Note 1)	250A (Note 1)
Circuit Number	NTE Number	NTE Number	NTE Number	NTE Number	NTE Number	NTE Number	NTE Number
1	5708	5710	5714	5720	5724	5726	5728
2		5711		5721			
3		5712		5722			
$V_{RRM}$	1600V	1200V	1600V	1200V	1600V	1600V	1600V
$V_F$ (Max)	1.55V @ 75A	1.4V @ 165A	1.4V @ 270A	1.4V @ 270A	1.4V @ 270A	1.5V @ 502A	1.44V @ 785A
$T_J$	-40°C to +125°C	-40°C to +125°C	-40°C to +125°C	-40°C to +125°C	-40°C to +125°C	-40°C to +125°C	-40°C to +130°C
$di/dt$ ( $T_J = +125°C$ )	100A/ $\mu$ s	100A/ $\mu$ s	100A/ $\mu$ s	100A/ $\mu$ s	100A/ $\mu$ s	500A/ $\mu$ s	500A/ $\mu$ s
$dv/dt$ ( $T_J = +125°C$ )	500V/ $\mu$ s	500V/ $\mu$ s	500V/ $\mu$ s	500V/ $\mu$ s	500V/ $\mu$ s	500V/ $\mu$ s	500V/ $\mu$ s
$I_{TSM}$ ( $1/2$ Cycle, 60Hz)	400A	1500A	1950A	1950A	1950A	5350A	8900A
$I^2T$ ( $t = 8.3ms$ )	670A <sup>2</sup> sec	9350A <sup>2</sup> sec	15800A <sup>2</sup> sec	15800A <sup>2</sup> sec	15800A <sup>2</sup> sec	131000A <sup>2</sup> sec	361000A <sup>2</sup> sec
$I_{GT}$ (Max @ +25°C)	150mA	150mA	150mA	150mA	150mA	200mA	200mA
$V_{GT}$ (Max @ +25°C)	3.0V	3.0V	3.0V	3.0V	3.0V	3.0V	3.0V
$P_{G(AV)}$	500mW	500mW	500mW	500mW	500mW	2W	2W
$V_{GM}$ (Max, Reverse)	5V	5V	5V	5V	5V	5V	5V
$R_{THJC}$ (Per Module)	0.40°C/W	0.25°C/W	0.14°C/W	0.14°C/W	0.14°C/W	0.05°C/W	0.02°C/W
$V_{ISOL}$	2500V <sub>RMS</sub>	2500V <sub>RMS</sub>	2500V <sub>RMS</sub>	2500V <sub>RMS</sub>	2500V <sub>RMS</sub>	3000V <sub>RMS</sub>	3000V <sub>RMS</sub>
Diag. No.	422	422	422	422	422	609	610

## RECTIFIER MODULES

$I_T(AV)$ per Device	55A (Note 1)	60A (Note 1)	90A (Note 1)	100A (Note 2)	195A (Note 2)	250A (Note 2)	320A (Note 2)
Circuit Number	NTE Number	NTE Number	NTE Number	NTE Number	NTE Number	NTE Number	NTE Number
4	6220	6222	6230	6232	6234	6236	6238
$V_{RRM}$	1200V	1600V	1200V	1600V	1600V	1600V	1600V
$V_F$ (Max)	1.4V @ 165A	1.4V @ 165A	1.4V @ 270A	1.3V @ 282A	1.32V @ 612A	1.29V @ 785A	1.28V @ 1004A
$T_J$	-40°C to +125°C	-40°C to +125°C	-40°C to +125°C	-40°C to +150°C	-40°C to +150°C	-40°C to +150°C	-40°C to +150°C
$di/dt$ ( $T_J = +125°C$ )	100A/ $\mu$ s	100A/ $\mu$ s	100A/ $\mu$ s	-	-	-	-
$dv/dt$	500V/ $\mu$ s	500V/ $\mu$ s	500V/ $\mu$ s	-	-	-	-
$I_{TSM}$ ( $1/2$ Cycle, 60Hz)	1500A	1500A	1950A	2020A	4750A	7345A	10580A
$I^2T$ ( $t = 8.3ms$ )	9350A <sup>2</sup> sec	9350A <sup>2</sup> sec	15800A <sup>2</sup> sec	18650A <sup>2</sup> sec	103000A <sup>2</sup> sec	225000A <sup>2</sup> sec	466000A <sup>2</sup> sec
$I_{GT}$ (Max @ +25°C)	150mA	150mA	150mA	-	-	-	-
$V_{GT}$ (Max @ +25°C)	3.0V	3.0V	3.0V	-	-	-	-
$P_{G(AV)}$	500mW	500mW	500mW	-	-	-	-
$V_{GM}$ (Max, Reverse)	5V	5V	5V	-	-	-	-
$R_{THJC}$ (Per Module)	0.25°C/W	0.25°C/W	0.14°C/W	0.22°C/W	0.20°C/W	0.16°C/W	0.125°C/W
$V_{ISOL}$	2500V <sub>RMS</sub>	2500V <sub>RMS</sub>	2500V <sub>RMS</sub>	3500V <sub>RMS</sub>	3000V <sub>RMS</sub>	3000V <sub>RMS</sub>	3000V <sub>RMS</sub>
Diag. No.	422	422	422	422	609	610	610

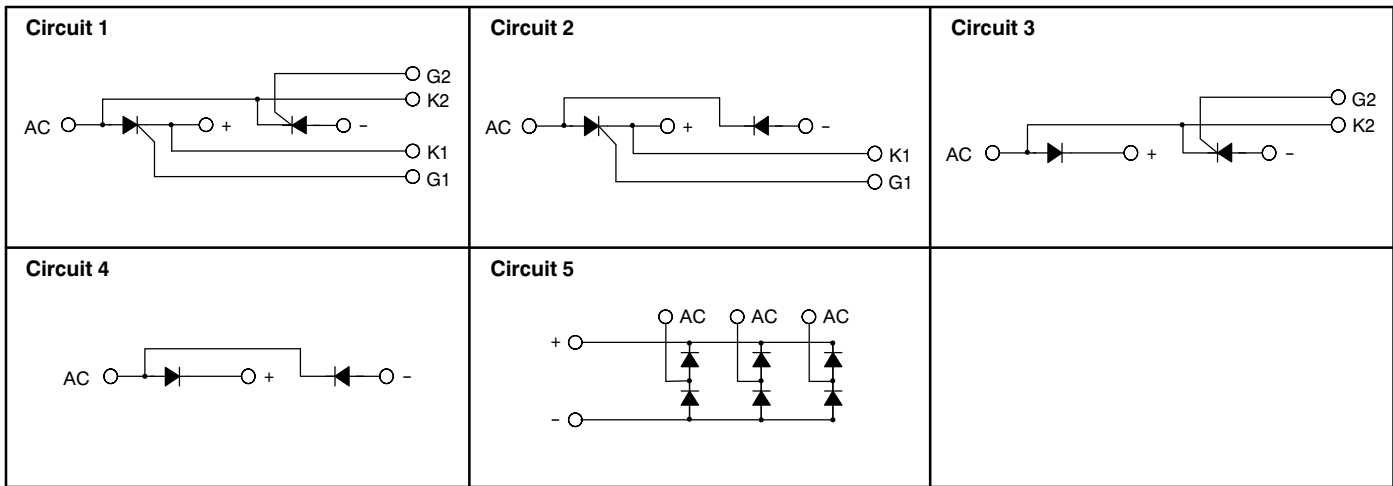
## 3 PHASE BRIDGE MODULES

$I_O$ per Diode	30A	30A	75A	75A	100A	100A
Circuit Number	NTE Number	NTE Number	NTE Number	NTE Number	NTE Number	NTE Number
5	5740	5741	5742	5743	5744	5745
$V_{RRM}$	800V	1600V	800V	1600V	800V	1600V
$V_F$ (Max)	1.1V @ 30A	1.3V @ 30A	1.15V @ 75A	1.15V @ 75A	1.15V @ 100A	1.15V @ 100A
$T_J$	-40°C to +150°C	-40°C to +150°C	-40°C to +150°C	-40°C to +150°C	-40°C to +150°C	-40°C to +150°C
$I_{TSM}$ (1 Cycle, 50Hz)	365A	270A	1000A	1000A	1200A	1200A
$R_{THJC}$	1.0°C/W	0.42°C/W	0.3°C/W	0.3°C/W	0.22°C/W	0.22°C/W
Diag. No.	619	620	618	618	618	618

Note 1.  $T_C = +85°C$

Note 2.  $T_C = +100°C$

# DIMENSIONAL OUTLINE DRAWINGS



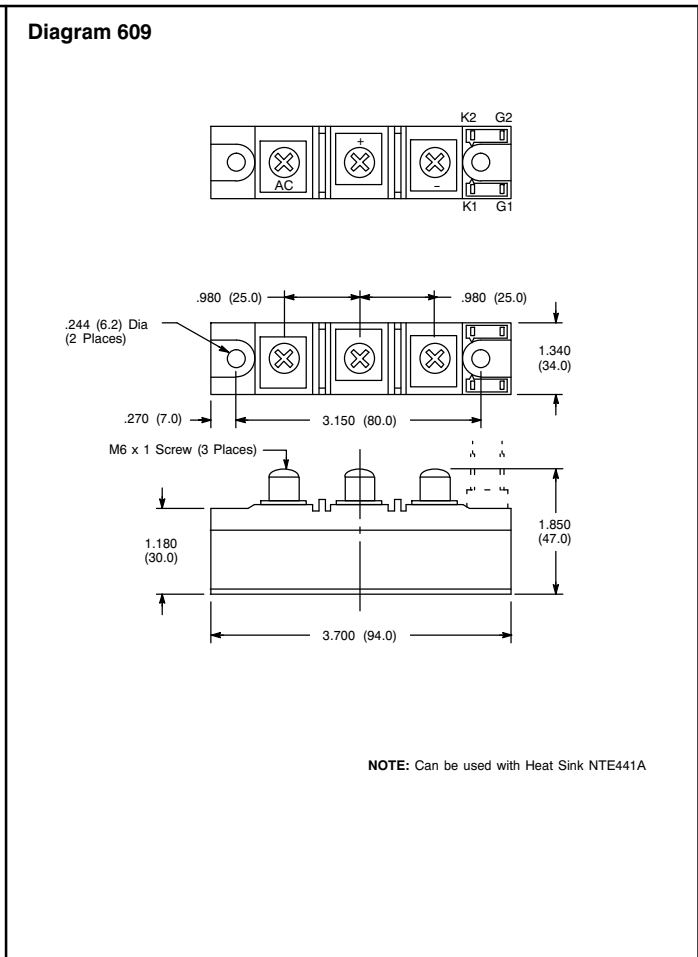
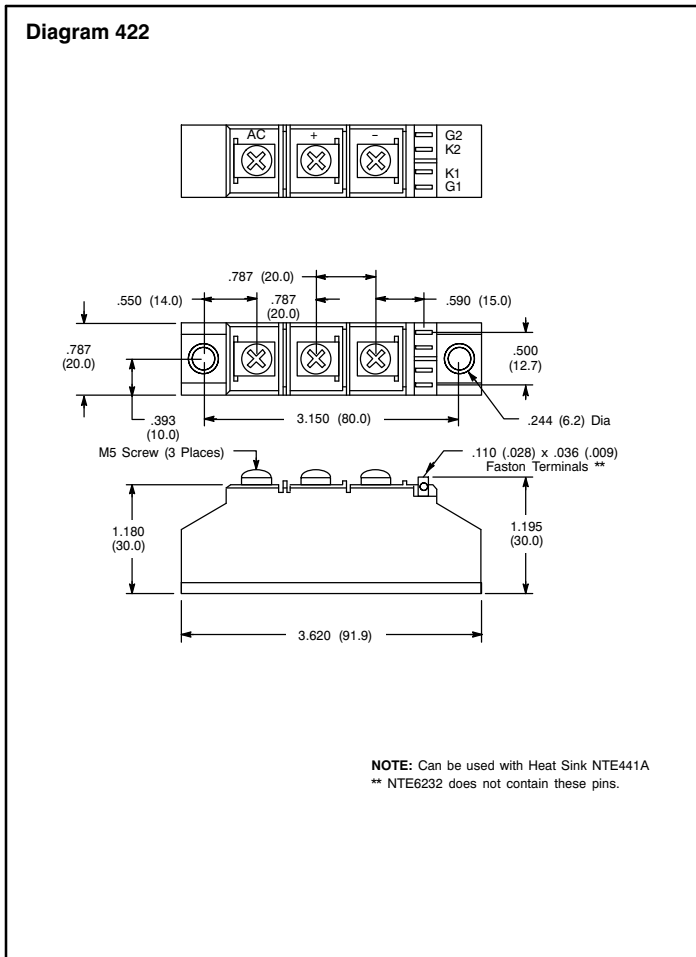
**POWERBLOCK NOTES:**

**MOUNTING:** Careful mounting of powerblocks on the heatsink is one of the most important requirements of reliable satisfactory application. The contact surfaces of powerblock and heatsink must be clean, free from contamination and damage. Finish and flatness of heatsink contact surface should be  $\leq 10\mu\text{m}$ . A thin and uniform film of interface thermal compound should be applied to contact surface of powerblock and heatsink. Fixing bolts have to be uniformly tightened with the specified mounting torque. Cross sections of busbars or cables have to be dimensioned so that heating up

the powerblock will be avoided. This applies in particular for series connected fuses.

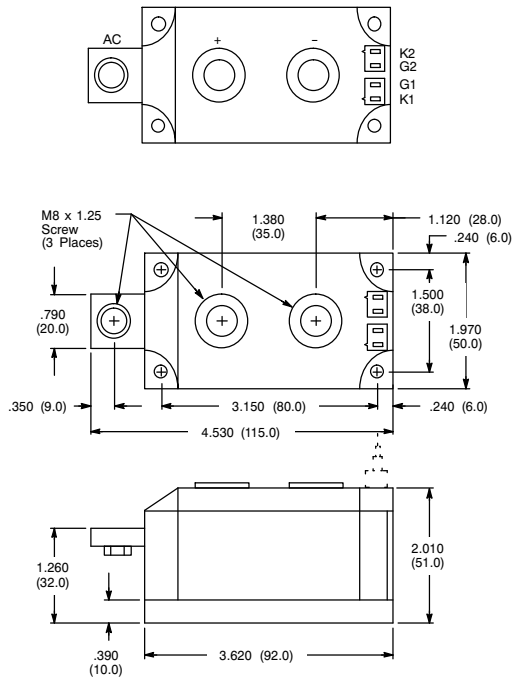
**MAINTENANCE:** Powerblocks are maintenance-free. The assembly group should, however, be cleaned from time to time to ensure the insulation capability, the heat dissipation and thus the availability of the power converter.

**WARNING:** Beryllium oxide is used in the powerblock assembly for insulation. Do not destroy the powerblock case because the beryllium oxide dust resulting from such action is hazardous if inhaled.

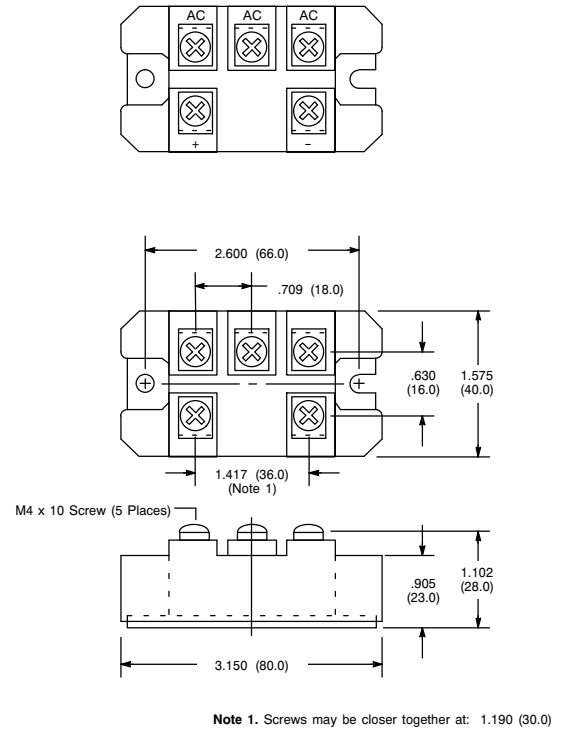


# DIMENSIONAL OUTLINE DRAWINGS

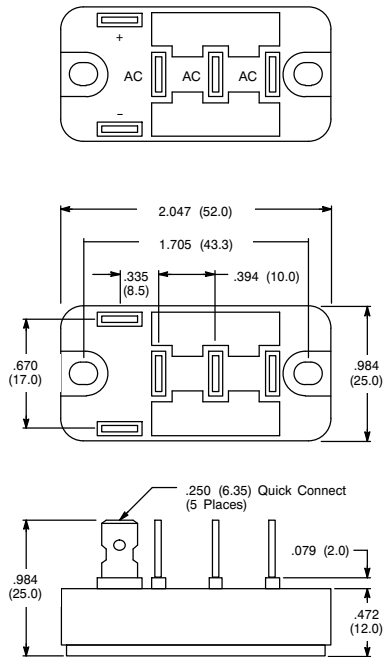
**Diagram 610**



**Diagram 618**



**Diagram 619**



**Diagram 620**

