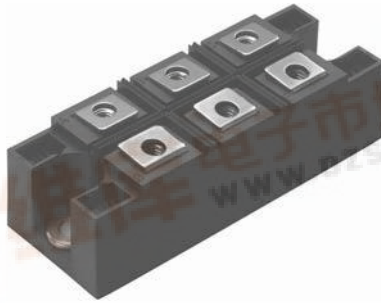




## 60-70MT..KPbF Series


Vishay High Power Products

### Three Phase Bridge (Power Modules), 60/70 A



MTK

#### FEATURES

- Package fully compatible with the industry standard INT-A-PAK power modules series
- High thermal conductivity package, electrically insulated case
- Excellent power volume ratio, outline for easy connections to power transistor and IGBT modules
- 4000 V<sub>RMS</sub> isolating voltage
- UL E78996 approved 
- Totally lead (Pb)-free
- Designed and qualified for industrial level



RoHS  
COMPLIANT

#### PRODUCT SUMMARY

|    |         |
|----|---------|
| Io | 60/70 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 heavy duty applications.

#### MAJOR RATINGS AND CHARACTERISTICS

| SYMBOL            | CHARACTERISTICS | 60MT.K      | 70MT.K  | UNITS              |
|-------------------|-----------------|-------------|---------|--------------------|
| Io                |                 | 60 (75)     | 70 (90) | A                  |
|                   | T <sub>C</sub>  | 85 (61)     | 85 (57) | °C                 |
| I <sub>FSM</sub>  | 50 Hz           | 420         | 480     | A                  |
|                   | 60 Hz           | 440         | 500     |                    |
| I <sup>2</sup> t  | 50 Hz           | 870         | 1150    | kA <sup>2</sup> s  |
|                   | 60 Hz           | 790         | 1050    |                    |
| I <sup>2</sup> √t |                 | 8700        | 11 500  | kA <sup>2</sup> √s |
| V <sub>RRM</sub>  | Range           | 800 to 1600 |         | V                  |
| T <sub>Stg</sub>  | Range           | - 40 to 150 |         | °C                 |
| T <sub>J</sub>    |                 |             |         |                    |

#### ELECTRICAL SPECIFICATIONS

##### VOLTAGE RATINGS

| TYPE NUMBER | VOLTAGE CODE | V <sub>RRM</sub> , MAXIMUM REPETITIVE PEAK REVERSE VOLTAGE<br>V | V <sub>RSM</sub> , MAXIMUM NON-REPETITIVE PEAK REVERSE VOLTAGE<br>V | I <sub>RRM</sub> MAXIMUM AT T <sub>J</sub> MAXIMUM<br>mA |
|-------------|--------------|---|---|--|
| 60-70MT..K  | 80           | 800   | 900   | 10   |
|             | 100          | 1000  | 1100  |  |
|             | 120          | 1200  | 1300  |  |
|             | 140          | 1400  | 1500  |  |
|             | 160          | 1600  | 1700  |  |



# 60-70MT..KPbF Series



Vishay High Power Products Three Phase Bridge  
(Power Modules), 60/70 A

| FORWARD CONDUCTION  |               |   |                           |                             |         |               |         |
|---|---------------|---|---------------------------|-----------------------------|---------|---------------|---------|
| PARAMETER   | SYMBOL        | TEST CONDITIONS   |                           | 60MT.K                      | 70MT.K  | UNITS         |         |
| Maximum DC output current at case temperature                 | $I_O$         | 120° rect. conduction angle   |                           | 60 (75)                     | 70 (90) | A             |         |
|   |               |   |                           | 85 (61)                     | 85 (57) | °C            |         |
| Maximum peak, one-cycle forward, non-repetitive surge current | $I_{FSM}$     | t = 10 ms   | No voltage reapplied      | Initial $T_J = T_J$ maximum | 420     | 480           | A       |
|   |               | t = 8.3 ms  |                           |                             | 440     | 500           |         |
|   |               | t = 10 ms   | 100 % $V_{RRM}$ reapplied |                             | 350     | 400           |         |
|   |               | t = 8.3 ms  |                           |                             | 370     | 420           |         |
| Maximum $I^2t$ for fusing                                     | $I^2t$        | t = 10 ms   | No voltage reapplied      | Initial $T_J = T_J$ maximum | 870     | 1150          | $kA^2s$ |
|   |               | t = 8.3 ms  |                           |                             | 790     | 1050          |         |
|   |               | t = 10 ms   | 100 % $V_{RRM}$ reapplied |                             | 610     | 800           |         |
|   |               | t = 8.3 ms  |                           |                             | 560     | 730           |         |
| Maximum $I^2\sqrt{t}$ for fusing                              | $I^2\sqrt{t}$ | t = 0.1 to 10 ms, no voltage reapplied  |                           | 8700                        | 11 300  | $A^2\sqrt{s}$ |         |
| Low level value of threshold voltage                          | $V_{F(TO)1}$  | $(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$ , $T_J$ maximum |                           | 0.85                        | 0.86    | V             |         |
| High level value of threshold voltage                         | $V_{F(TO)2}$  | $(I > \pi \times I_{F(AV)})$ , $T_J$ maximum                                      |                           | 1.07                        | 1.08    |               |         |
| Low level value of forward slope resistance                   | $r_{f1}$      | $(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$ , $T_J$ maximum |                           | 8.04                        | 7.35    | $m\Omega$     |         |
| High level value of forward slope resistance                  | $r_{f2}$      | $(I > \pi \times I_{F(AV)})$ , $T_J$ maximum                                      |                           | 7.08                        | 6.53    |               |         |
| Maximum forward voltage drop                                  | $V_{FM}$      | $I_{pk} = 100$ A, $T_J = 25$ °C, $t_p = 400$ $\mu s$ single junction              |                           | 1.75                        | 1.55    | V             |         |
| RMS isolation voltage   | $V_{ISOL}$    | $T_J = 25$ °C, all terminal shorted<br>$f = 50$ Hz, $t = 1$ s                     |                           | 4000                        |         |               |         |

| THERMAL AND MECHANICAL SPECIFICATIONS                    |                            |  |  |             |        |       |
|--|----------------------------|--|--|-------------|--------|-------|
| PARAMETER  | SYMBOL                     | TEST CONDITIONS  |  | 60MT.K      | 70MT.K | UNITS |
| Maximum junction operating and storage temperature range | $T_J, T_{Stg}$             |  |  | - 40 to 150 |        | °C    |
| Maximum thermal resistance, junction to case             | $R_{thJC}$                 | DC operation per module  |  | 0.37        | 0.29   | K/W   |
|  |                            | DC operation per junction  |  | 2.22        | 1.75   |       |
|  |                            | 120° rect. conduction angle per module   |  | 0.40        | 0.34   |       |
|  |                            | 120° rect. conduction angle per junction   |  | 2.42        | 2.01   |       |
| Maximum thermal resistance, case to heatsink per module  | $R_{thCS}$                 | Mounting surface smooth, flat and greased  |  | 0.03        |        |       |
| Mounting torque $\pm 10$ %                               | to heatsink<br>to terminal | A mounting compound is recommended and the torque should be rechecked after a period of 3 hours to allow for the spread of the compound. Lubricated threads. |  | 4 to 6      |        | Nm    |
|  |                            |  |  | 3 to 4      |        |       |
| Approximate weight                                       |                            |  |  | 176         |        | g     |



# 60-70MT..KpB Series

Three Phase Bridge  
(Power Modules), 60/70 A

Vishay High Power Products

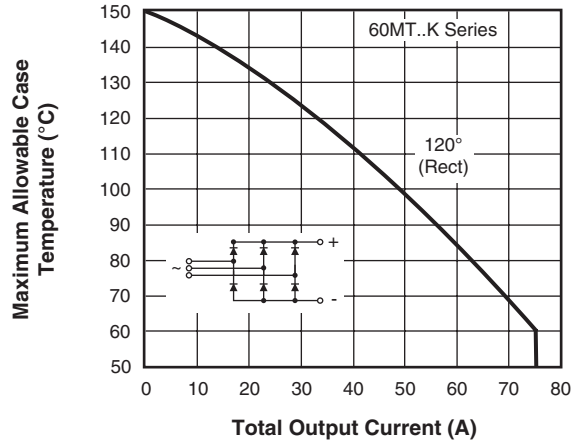


Fig. 1 - Current Ratings Characteristics

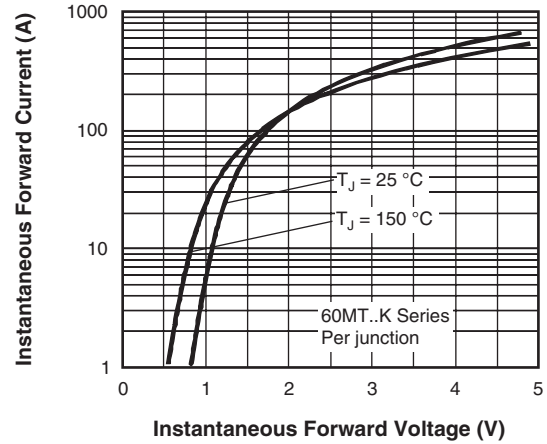


Fig. 2 - Forward Voltage Drop Characteristics

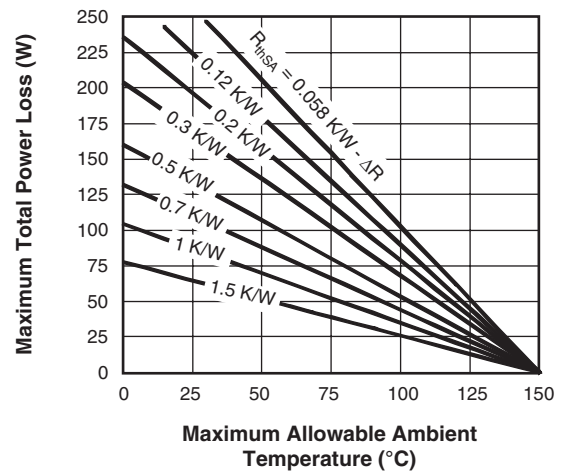
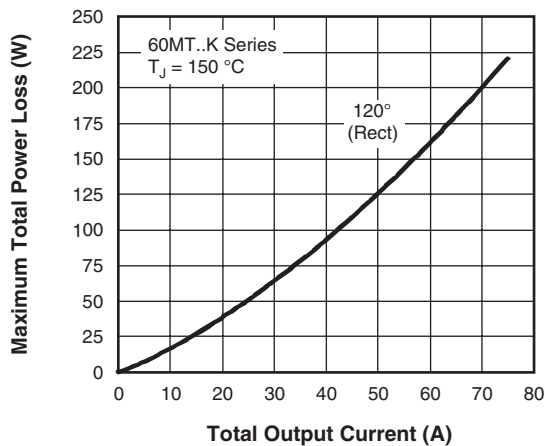


Fig. 3 - Total Power Loss Characteristics

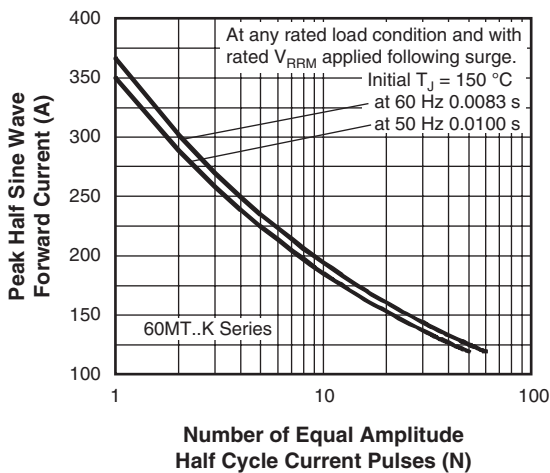


Fig. 4 - Maximum Non-Repetitive Surge Current

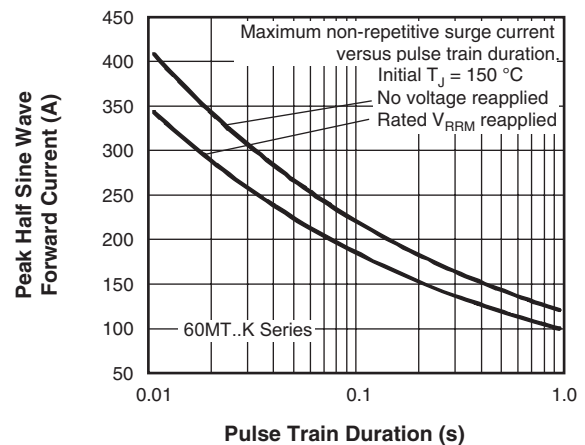


Fig. 5 - Maximum Non-Repetitive Surge Current

# 60-70MT..KPbF Series



Vishay High Power Products Three Phase Bridge (Power Modules), 60/70 A

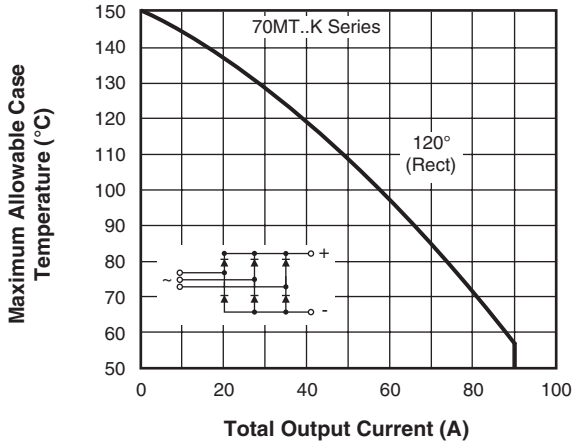


Fig. 6 - Current Ratings Characteristics

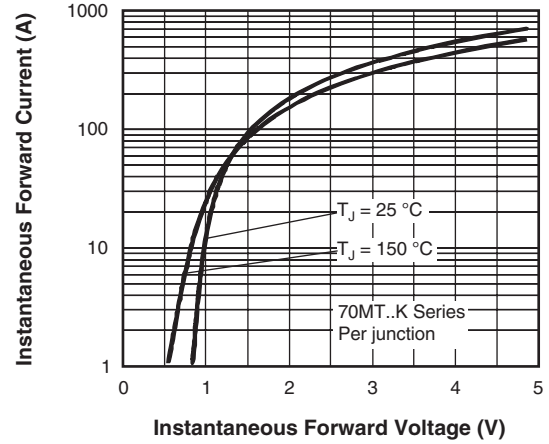


Fig. 7 - Forward Voltage Drop Characteristics

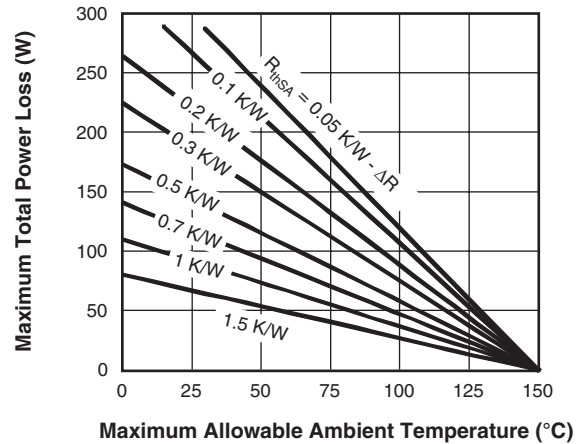
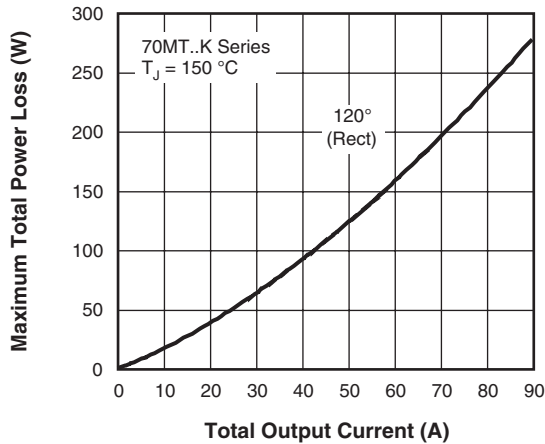


Fig. 8 - Total Power Loss Characteristics

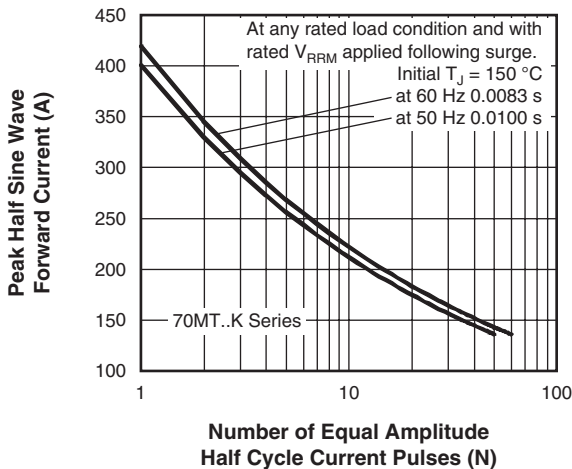


Fig. 9 - Maximum Non-Repetitive Surge Current

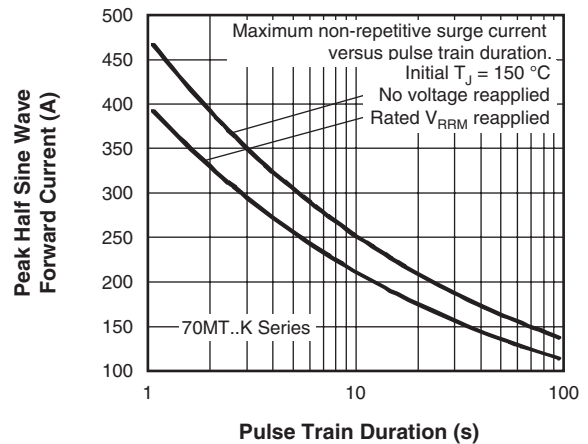


Fig. 10 - Maximum Non-Repetitive Surge Current





### Disclaimer

All product specifications and data are subject to change without notice.

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