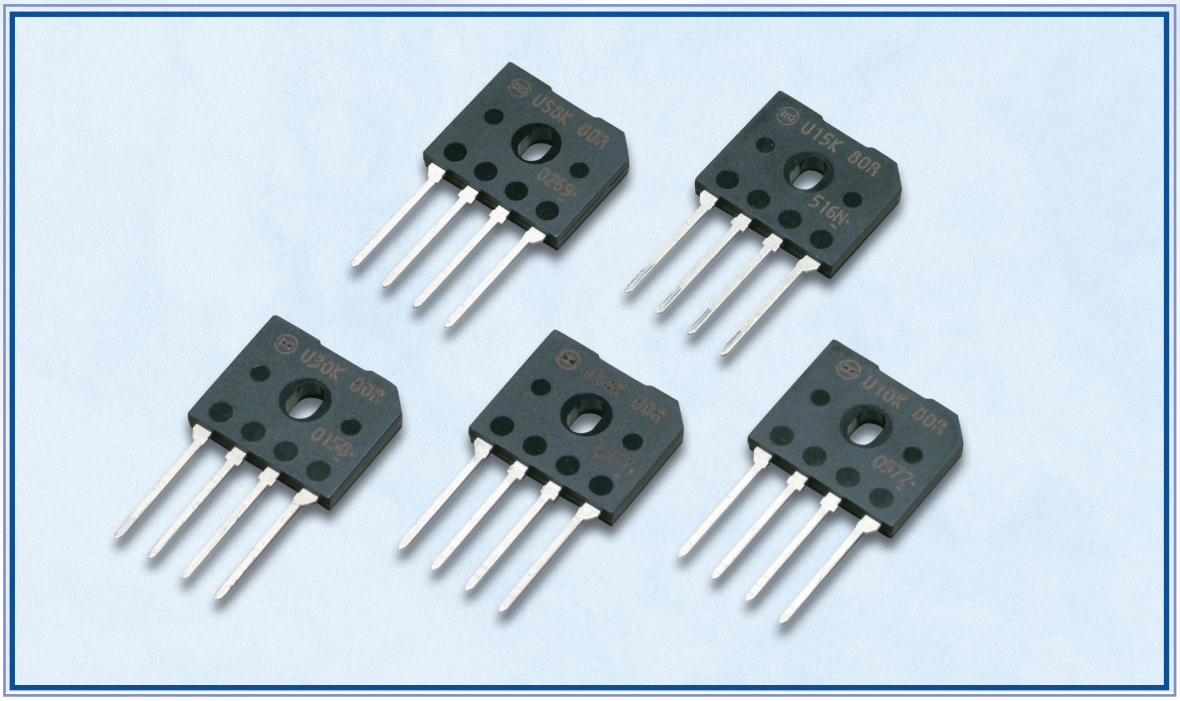
CAT.No.TJ 536

SILICON BRIDGE DIODES

# USKB SERIES

UL File No. E142422



## Summary

Bridge diodes are being required to take up less space accompanying the reduced size of electronic equipment. In order to respond to these needs, Shindengen has developed a new package in offering a complete lineup of bridge diodes that can be used in a wide range of power supply environments.

## Features

- Rectified forward current : 4A (US4KB80R), 6A (US6KB80R), 8A (US8KB80R), (with heat sink) 10A (US10KB80R), 15A (US15KB80R), 30A (US30KB80R)
- Large current capacity of 30A with compact package
- High $I_{FSM}$ and High Voltage
- UL approved Bridge Rectifier Diodes, registered in file number E142422
- High-density mounting for improved space efficiency through the use of SIP (Single In-Line Package)

## Application

TV, Monitor, Switching power supply, PC, Audio, Printer

SHINDENGEN

# RATINGS

## ● Absolute Maximum Ratings （Tc=25℃／Unless otherwise specified）

| Item | Symbol | Conditions | | US4KB80R | US6KB80R | US8KB80R | Unit |
|---|---|---|---|---|---|---|---|
| Storage Temperature | Tstg | | | −55～150 | | | ℃ |
| Operation Junction Temperature | Tj | | | 150 | | | ℃ |
| Maximun Reverse Voltage | $V_{RM}$ | | | 800 | | | V |
| Average Rectified Forward Current | Io | 60Hz sine wave, Resistance load | With heatsink | 4 (Tc=125℃) | 6 (Tc=116℃) | 8 (Tc=108℃) | A |
| | | | Without heatsink | 2.1 (Ta=30℃) | 2.1 (Ta=30℃) | 2.2 (Ta=26℃) | |
| Peak Surge Forward Current | $I_{FSM}$ | 60Hz sine wave, Non-repetitive 1cycle peak value, Tj=25℃ | | 150 | 175 | 200 | A |
| | $I_{FSM}$[1] | Non−repetitive, Tj=25℃ | | 245 (tp=3ms) | 470 (tp=1ms) | 575 (tp=1ms) | |
| Current Squared Time | $I^2t$ | Tj=25℃, Per diode | | 93 (3ms≦t<8.3ms) | 112 (1ms≦t<8.3ms) | 166 (1ms≦t<8.3ms) | $A^2s$ |
| Dielectric Strength | Vdis | Terminals to cace, AC 1 minute | | 2.0 | | | kV |
| Mounting Torque | TOR | (Recommended torque:0.5N・m) | | 0.8 | | | N・m |

## ● Electrical Characteristics （Tc=25℃／Unless otherwise specified）

| | | | | | | |
|---|---|---|---|---|---|---|
| Forward Voltage | $V_F$ | Pulse measurement, Per diode | MAX. 1.00 ($I_F$=2A) | MAX. 1.00 ($I_F$=3A) | MAX. 1.00 ($I_F$=4A) | V |
| Reverse Current | $I_R$ | $V_R$=800V, Pulse measurement, Per diode | MAX. 10 | | | μA |
| Thermal Resistance | θjc | Junction to case, With heatsink | MAX. 3.5 | MAX. 3.0 | MAX. 2.8 | ℃/W |
| | θjl | Junction to lead, Without heatsink | MAX. 5 | | | |
| | θja | Junction to ambient, Without heatsink | MAX. 35 | | | |
| Type No. | | | US4K80R | US6K80R | US8K80R | |

## ● Absolute Maximum Ratings （Tc=25℃／Unless otherwise specified）

| Item | Symbol | Conditions | | US10KB80R | US15KB80R | US30KB80R | Unit |
|---|---|---|---|---|---|---|---|
| Storage Temperature | Tstg | | | −55～150 | | | ℃ |
| Operation Junction Temperature | Tj | | | 150 | | | ℃ |
| Maximun Reverse Voltage | $V_{RM}$ | | | 800 | | | V |
| Average Rectified Forward Current | Io | 60Hz sine wave, Resistance load | With heatsink | 10 (Tc=100℃) | 15 (Tc=101℃) | 30 (Tc=97℃) | A |
| | | | Without heatsink | 2 (Ta=28℃) | 2 (Ta=30℃) | 2.1 (Ta=27℃) | |
| Peak Surge Forward Current | $I_{FSM}$ | 60Hz sine wave, Non−repetitive 1cycle peak value, Tj=25℃ | | 150 | 200 | 350 | A |
| | $I_{FSM}$[1] | Non-repetitive, Tj=25℃ | | 245 (tp=3ms) | 330 (tp=3ms) | 1000 (tp=1ms) | |
| Current Squared Time | $I^2t$ | Tj=25℃, Per diode | | 93 (3ms≦t<8.3ms) | 166 (3ms≦t<8.3ms) | 510 (1ms≦t<8.3ms) | $A^2s$ |
| Dielectric Strength | Vdis | Terminals to cace, AC 1 minute | | 2.0 | | | kV |
| Mounting Torque | TOR | (Recommended torque:0.5N・m) | | 0.8 | | | N・m |

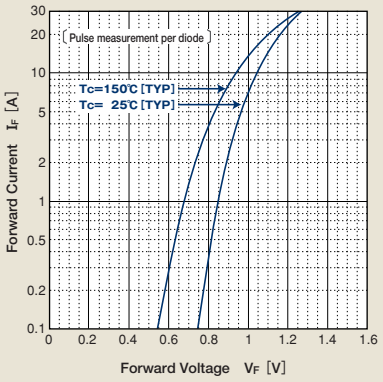
## ●Electrical Characteristics （Tc=25℃／Unless otherwise specified）

| | | | | | | |
|---|---|---|---|---|---|---|
| Forward Voltage | $V_F$ | Pulse measurement, Per diode | MAX. 1.10 ($I_F$=5A) | MAX. 1.10 ($I_F$=7.5A) | MAX. 1.10 ($I_F$=15A) | V |
| Reverse Current | $I_R$ | $V_R$=800V, Pulse measurement, Per diode | MAX. 10 | | | μA |
| Thermal Resistance | θjc | Junction to case, With heatsink | MAX. 2.5 | MAX. 1.5 | MAX. 0.8 | ℃/W |
| | θjl | Junction to lead, Without heatsink | MAX. 5 | | | |
| | θja | Junction to ambient, Without heatsink | MAX. 35 | | | |
| Type No. | | | U10K80R | U15K80R | U30K80R | |

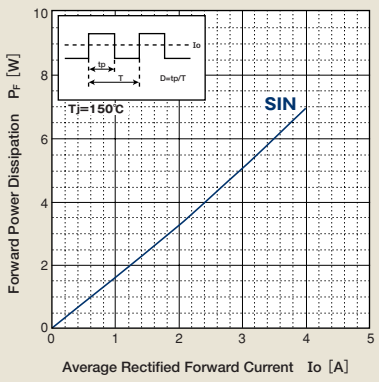
# CHARACTERISTIC DIAGRAMS

## US4KB80R

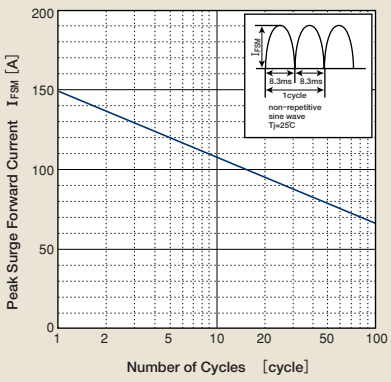
### Forward Voltage



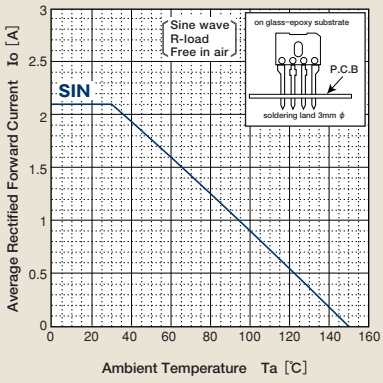

### Forward Power Dissipation



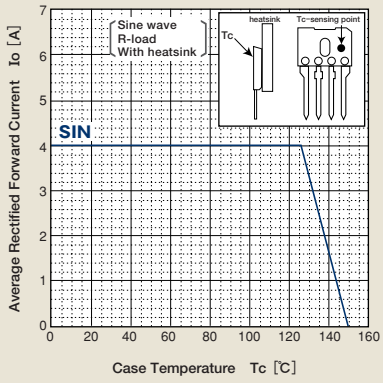

### Peak Surge Forward Current Capability



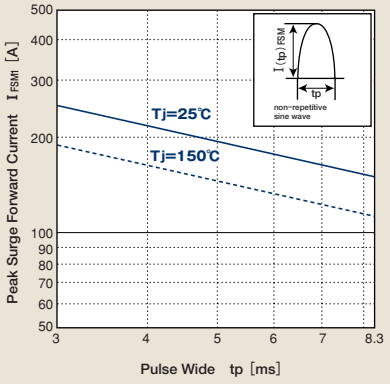

### Derating Curve Ta-Io




### Derating Curve Tc-Io

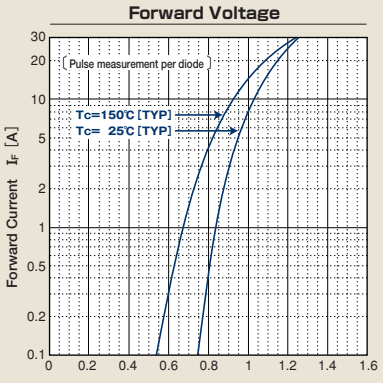



### Peak Surge Forward Current Capability

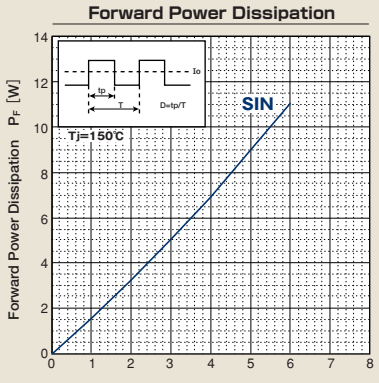



## US6KB80R

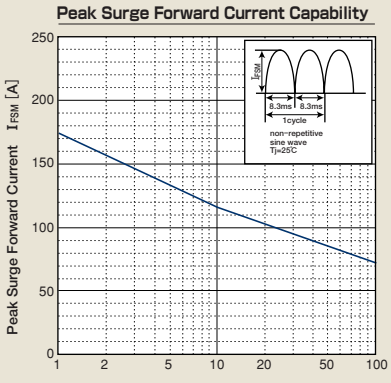
### Forward Voltage



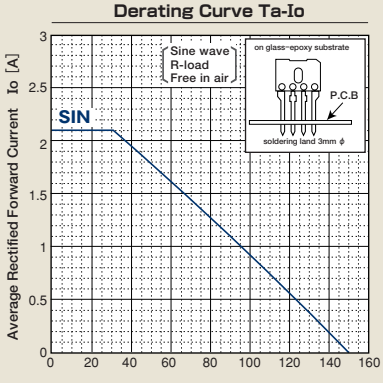

### Forward Power Dissipation



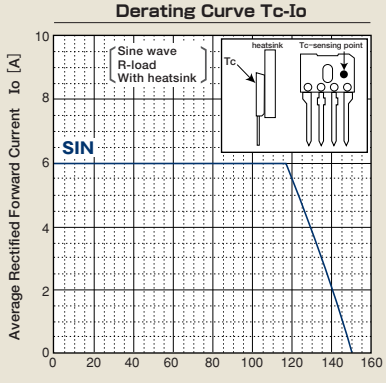

### Peak Surge Forward Current Capability



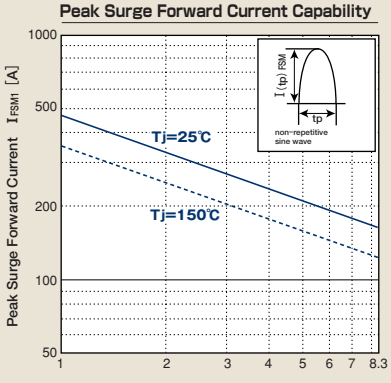

### Derating Curve Ta-Io




### Derating Curve Tc-Io



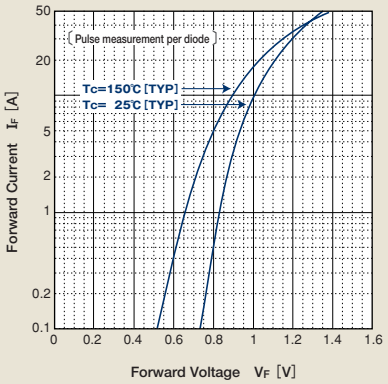

### Peak Surge Forward Current Capability



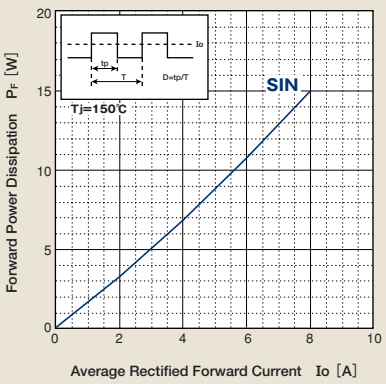
# CHARACTERISTIC DIAGRAMS

## US8KB80R

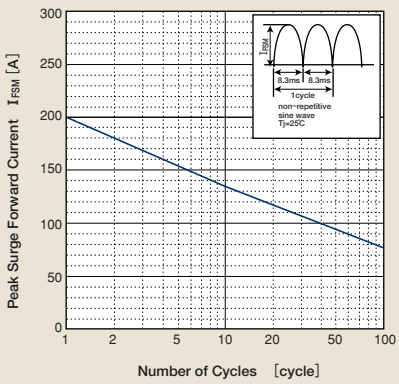
### Forward Voltage



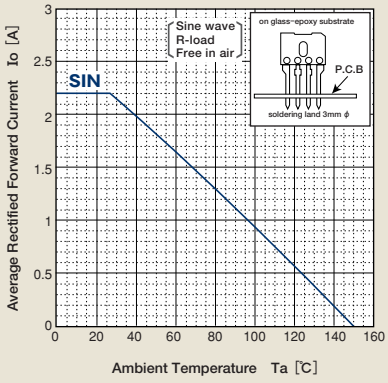

### Forward Power Dissipation



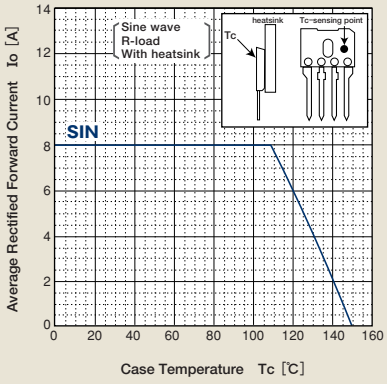

### Peak Surge Forward Current Capability



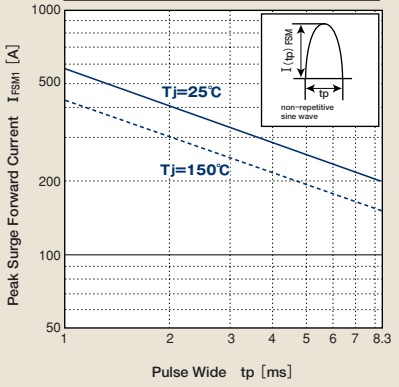

### Derating Curve Ta-Io




### Derating Curve Tc-Io

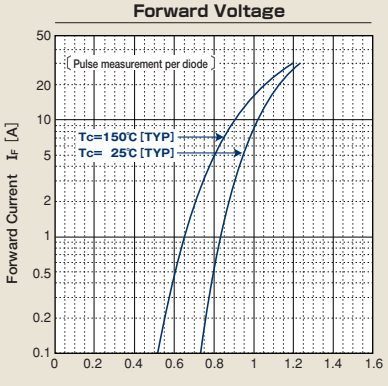



### Peak Surge Forward Current Capability

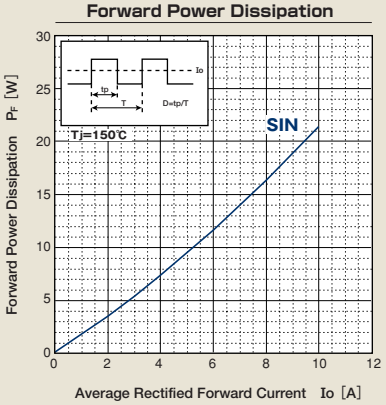



## US10KB80R

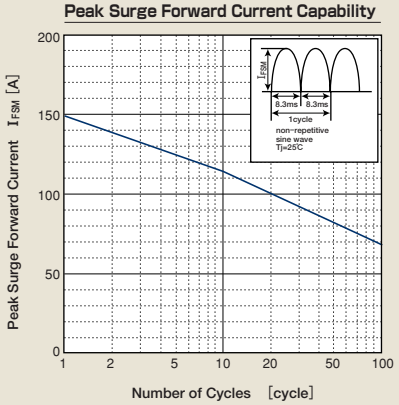
### Forward Voltage



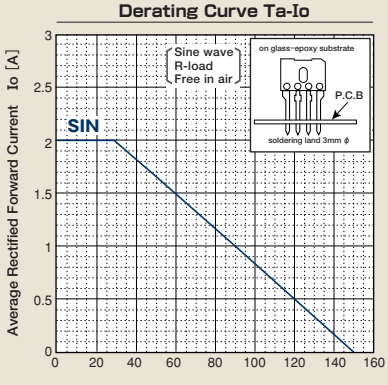

### Forward Power Dissipation



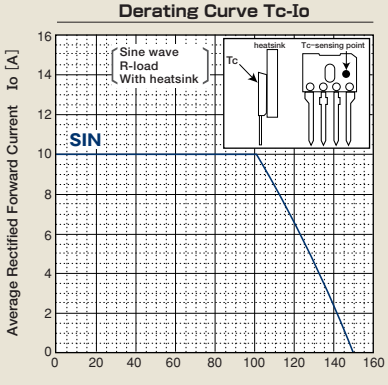

### Peak Surge Forward Current Capability



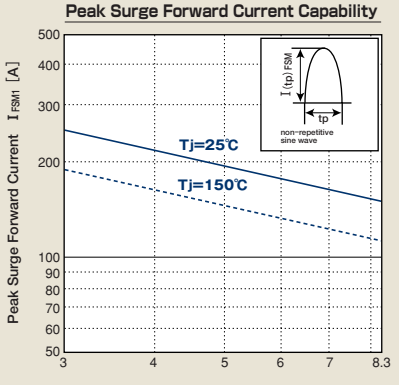

### Derating Curve Ta-Io




### Derating Curve Tc-Io



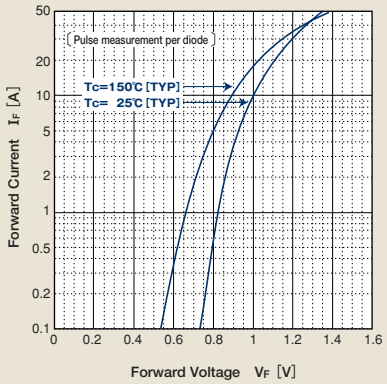

### Peak Surge Forward Current Capability



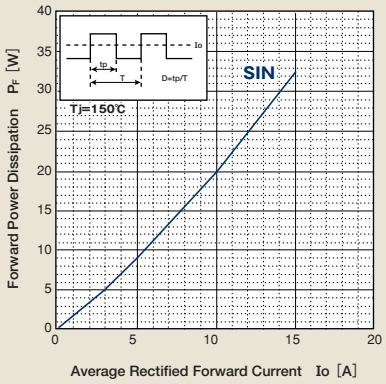
# CHARACTERISTIC DIAGRAMS

## US15KB80R

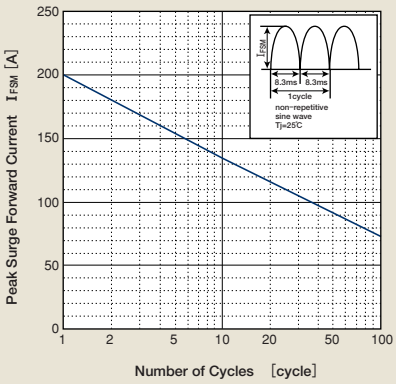
### Forward Voltage



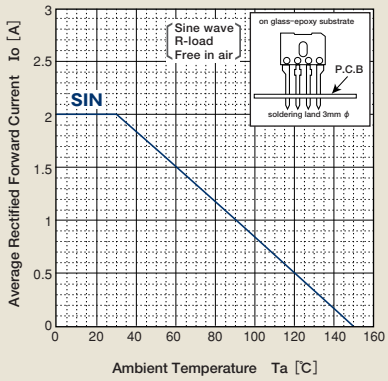

### Forward Power Dissipation



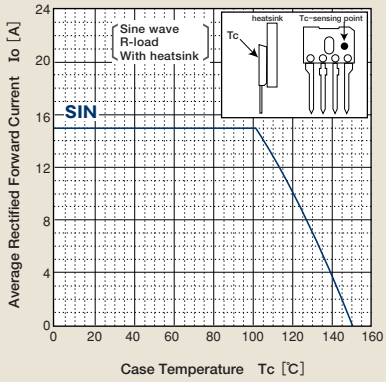

### Peak Surge Forward Current Capability



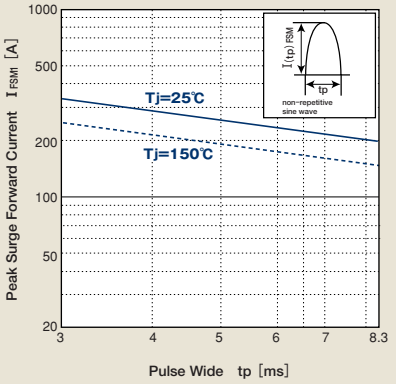

### Derating Curve Ta-Io




### Derating Curve Tc-Io

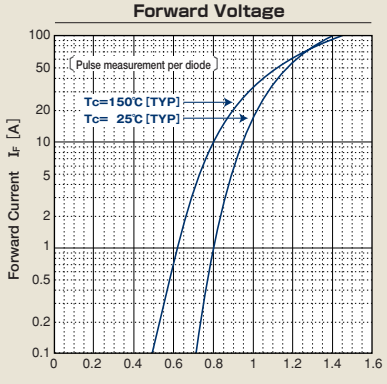



### Peak Surge Forward Current Capability

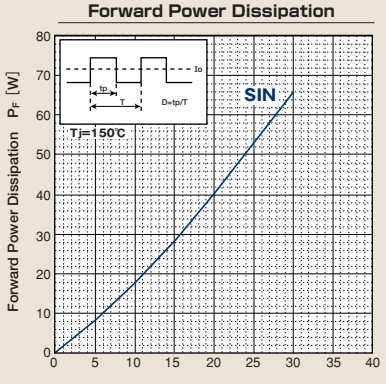



## US30KB80R

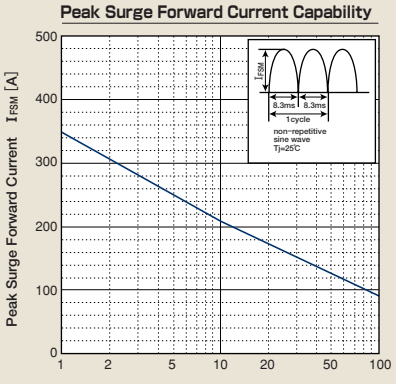
### Forward Voltage



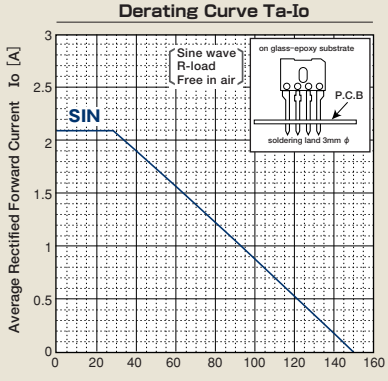

### Forward Power Dissipation



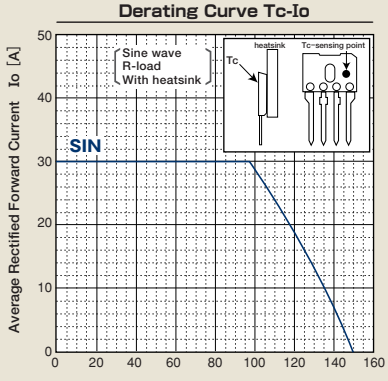

### Peak Surge Forward Current Capability



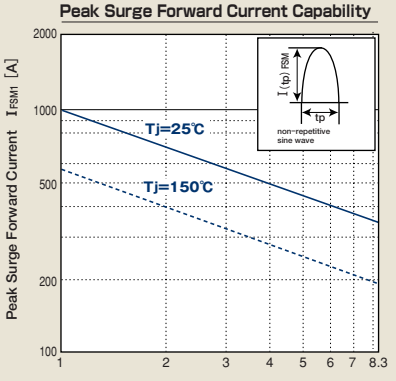

### Derating Curve Ta-Io




### Derating Curve Tc-Io

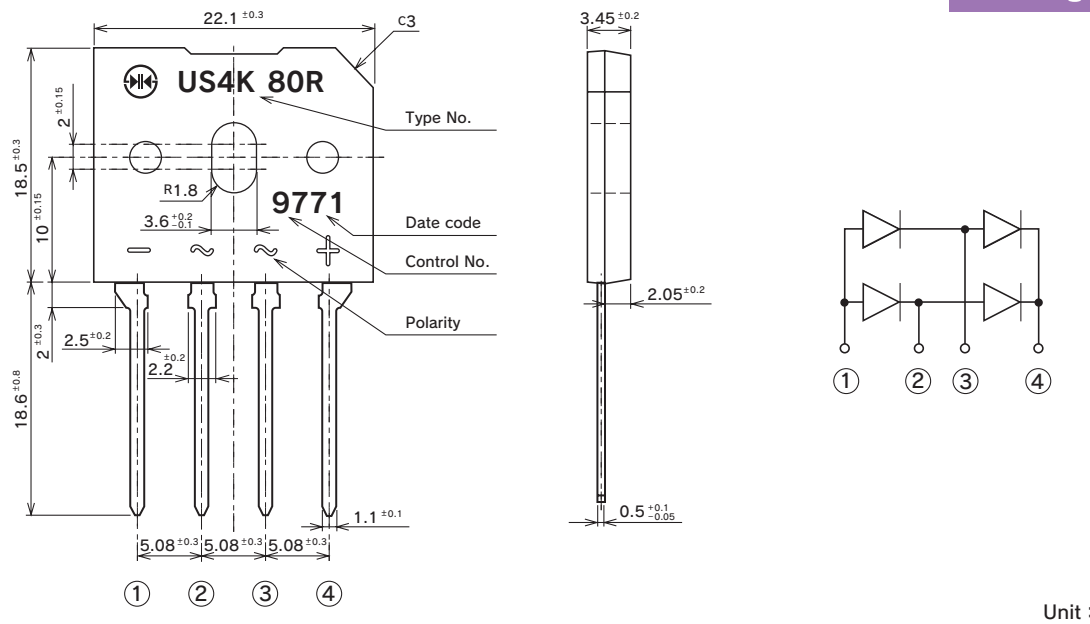



### Peak Surge Forward Current Capability



# OUTLINE DIMENSIONS

**Package : D6K**




Unit : mm

■The level of quality of our products is intended for use in standard applications. (OA and other office equipment, communication equipment, measuring instruments, home appliances, industrial equipment, etc.) In the case these products are to be used in equipment or devices in which failure or malfunction of a product may directly affect human life or health (Nuclear power control equipment, aerospace equipment, devices and systems for preserving life, transportation equipment, traffic control equipment, safety control devices, fire prevention/anti-theft equipment, combustion control equipment, etc.), always make sure to contact us in advance.
■All specifications are subject to change without notice.
■Please contact us for the latest specifications before you order.
■Please use our products after confirming the details in the specifications and the application manuals.


**U.S.A**

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【URL】http://www.shindengen.co.jp


07600 (NQ)