

# GPFM501YC-D Thru GPFM507YC-D

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# GPFM501YC-D Thru GPFM507YC-D

## 5.0A General Purpose Rectifiers : 50V ~ 1000V

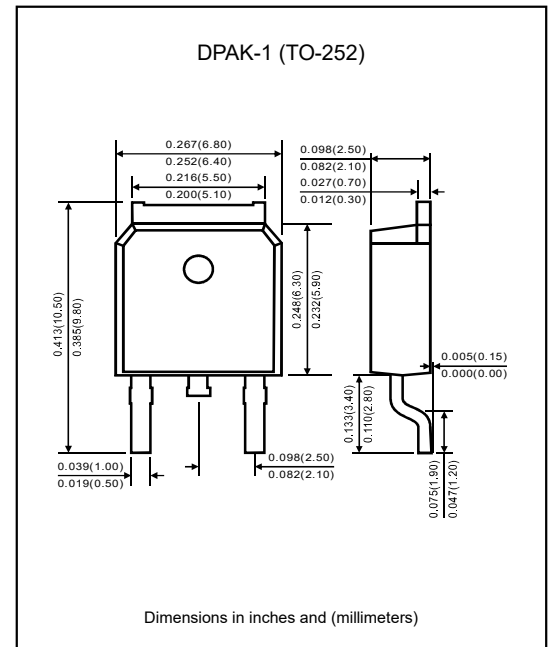
### Features

- Low reverse leakage.
- High forward surge current capability.
- High temperature soldering guaranteed 260°C/10 seconds at terminals.
- Construction utilizes void-free molded plastic technique.
- Lead-free parts meet RoHS requirements.
- Suffix "-H" indicates Halogen-free parts, ex. GPFM501YC-D-H.

### Mechanical data

- Epoxy:UL94-V0 rated flame retardant.
- Case : Molded plastic, DPAK-1(TO-252).
- Terminals : Solder plated, solderable per MIL-STD-750,Method 2026.
- Mounting Position : Any.

### Package outline



### Maximum ratings (AT $T_A=25^{\circ}\text{C}$ unless otherwise noted)

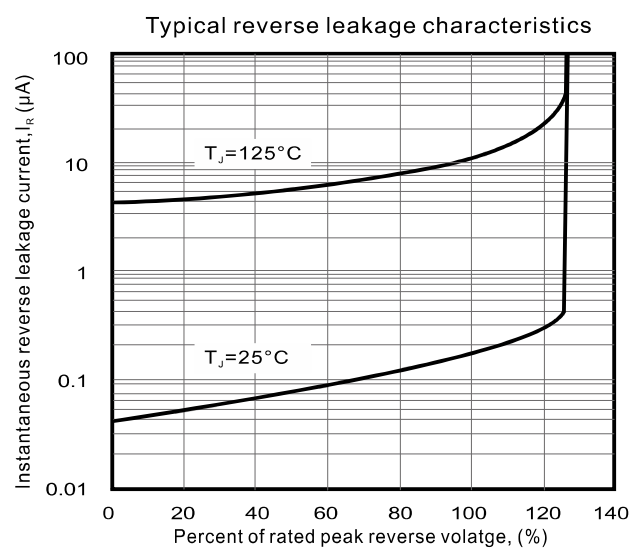
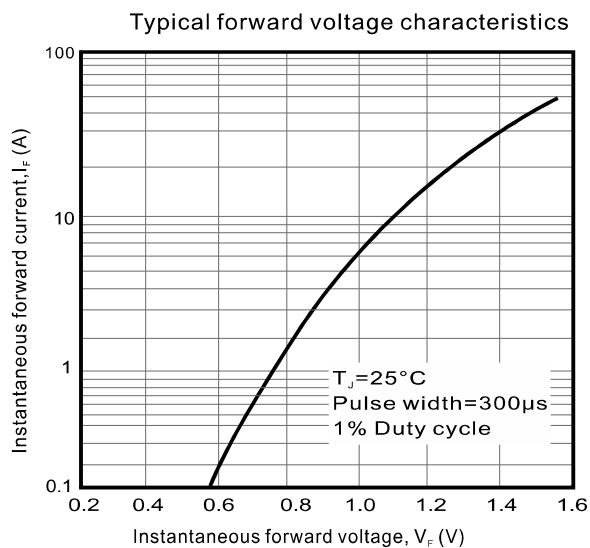
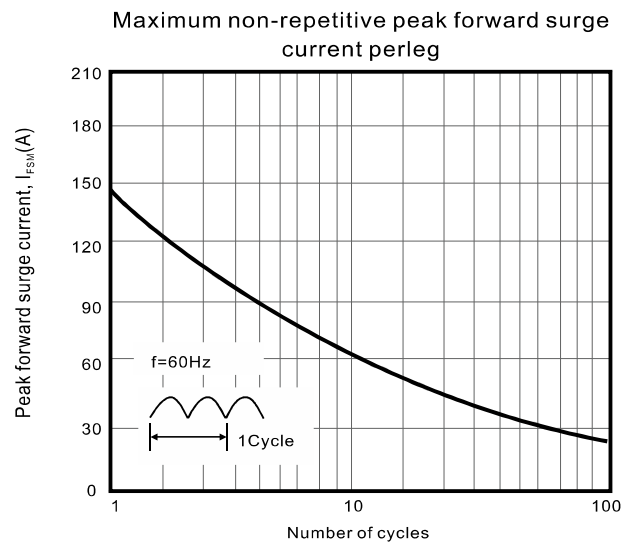
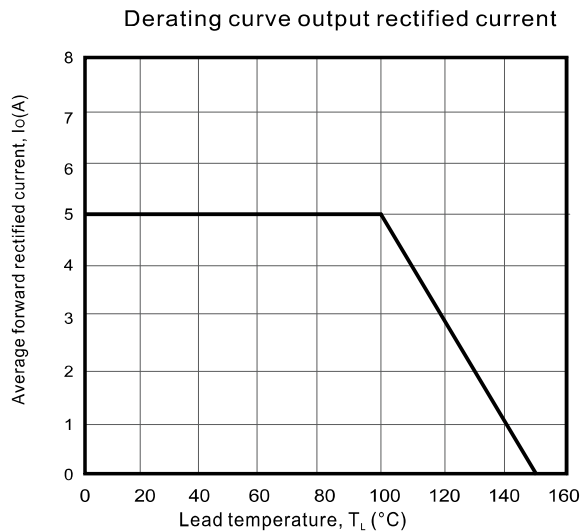
| Parameter                                                                            | Symbol           | GPFM<br>501YC-D | GPFM<br>502YC-D | GPFM<br>503YC-D | GPFM<br>504YC-D | GPFM<br>505YC-D | GPFM<br>506YC-D | GPFM<br>507YC-D | Unit |
|--------------------------------------------------------------------------------------|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------|
| Maximum repetitive peak reverse voltage                                              | V <sub>RRM</sub> | 50              | 100             | 200             | 400             | 600             | 800             | 1000            | V    |
| Maximum RMS voltage                                                                  | V <sub>RMS</sub> | 35              | 70              | 140             | 280             | 420             | 560             | 700             | V    |
| Maximum DC blocking voltage                                                          | V <sub>DC</sub>  | 50              | 100             | 200             | 400             | 600             | 800             | 1000            | V    |
| Maximum average forward rectified current<br>at T <sub>L</sub> =100°C                | I <sub>O</sub>   | 5               |                 |                 |                 |                 |                 |                 | A    |
| Peak forward surge current 8.3ms single<br>half sine-wave superimposed on rated load | I <sub>FSM</sub> | 150             |                 |                 |                 |                 |                 |                 | A    |
| Maximum instantaneous forward voltage at<br>I <sub>F</sub> =5.0A                     | V <sub>F</sub>   | 1.1             |                 |                 |                 |                 |                 |                 | V    |
| Maximum DC reverse current (T <sub>A</sub> =25°C)                                    | I <sub>R</sub>   | 5.0             |                 |                 |                 |                 |                 |                 | μA   |
| at rated DC blocking voltage (T <sub>A</sub> =125°C)                                 |                  | 500             |                 |                 |                 |                 |                 |                 |      |
| Typical junction capacitance (Note 1)                                                | C <sub>J</sub>   | 47              |                 |                 |                 |                 |                 |                 | pF   |
| Thermal resistance, junction to case                                                 | R <sub>θJC</sub> | 2.5             |                 |                 |                 |                 |                 |                 | °C/W |
| Operating junction temperature                                                       | T <sub>J</sub>   | +150            |                 |                 |                 |                 |                 |                 | °C   |
| Storage temperature range                                                            | T <sub>STG</sub> | -55 to +150     |                 |                 |                 |                 |                 |                 | °C   |

Note: 1. Measured at 1MHz and applied reverse voltage of 4.0V D.C.

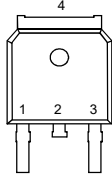
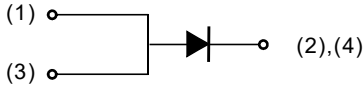
2. Single phase half-wave 60Hz, resistive or inductive load, for capacitive load current derate by 20%.

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## Rating and characteristic curves

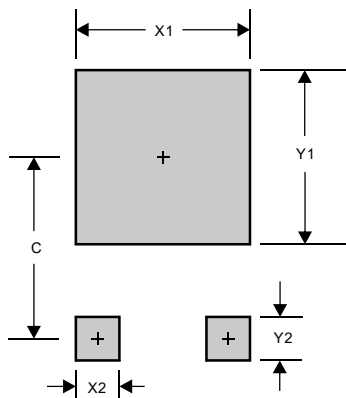


**GPFM501YC-D Thru GPFM507YC-D****Pinning information**

| Pin                                | Simplified outline                                                                | Symbol                                                                              |
|------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Pin 1, 3 Anode<br>Pin 2, 4 Cathode |  |  |

**Marking**

| Type number | Marking code |
|-------------|--------------|
| GPFM501YC-D | GS505YS      |
| GPFM502YC-D | GS510YS      |
| GPFM503YC-D | GS520YS      |
| GPFM504YC-D | GS540YS      |
| GPFM505YC-D | GS560YS      |
| GPFM506YC-D | GS580YS      |
| GPFM507YC-D | GS5100YS     |

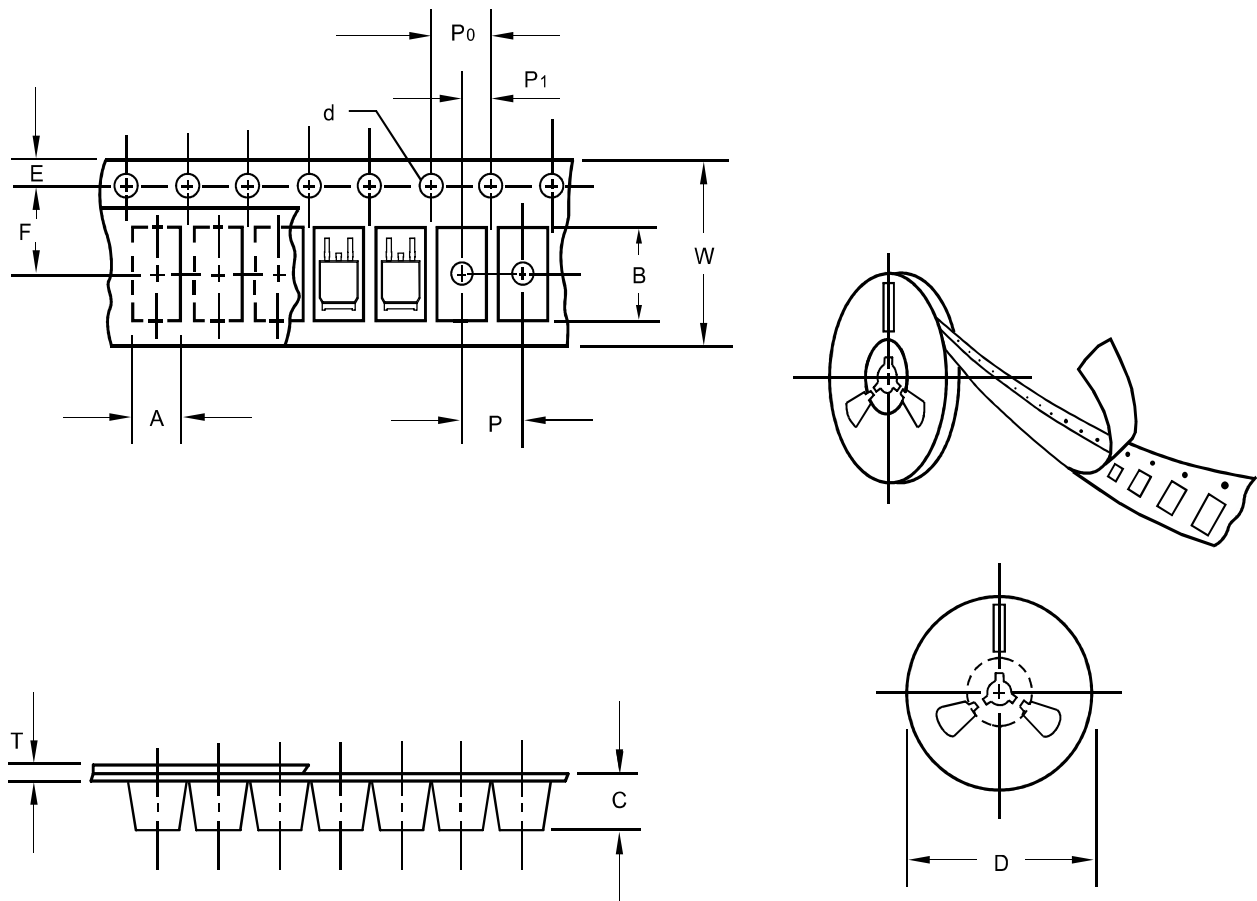
**Suggested solder pad layout**

| PACKAGE | DPAK-1      |
|---------|-------------|
| C       | 0.261(6.64) |
| X1      | 0.240(6.10) |
| X2      | 0.056(1.42) |
| Y1      | 0.298(7.57) |
| Y2      | 0.109(2.76) |

Dimensions in inches and (millimeters)

## GPFM501YC-D Thru GPFM507YC-D

## Packing information



unit:mm

| Item                      | Symbol         | Tolerance | DPAK-1<br>(TO-252) |
|---------------------------|----------------|-----------|--------------------|
| Carrier width             | A              | 0.1       | 6.90               |
| Carrier length            | B              | 0.1       | 10.50              |
| Carrier depth             | C              | 0.1       | 2.70               |
| Sprocket hole             | d              | 0.1       | 1.55               |
| 13" Reel outside diameter | D              | 2.0       | 330.00             |
| 7" Reel outside diameter  | D              | 2.0       | -                  |
| Sprocket hole position    | E              | 0.1       | 1.75               |
| Punch hole position       | F              | 0.1       | 7.50               |
| Punch hole pitch          | P              | 0.1       | 8.00               |
| Sprocket hole pitch       | P <sub>0</sub> | 0.1       | 4.00               |
| Embossment center         | P <sub>1</sub> | 0.1       | 2.00               |
| Overall tape thickness    | T              | 0.1       | 0.30               |
| Tape width                | W              | 0.3       | 16.00              |

Note: Devices are packed in accordance with EIA standard RS-481-A and specifications listed above.

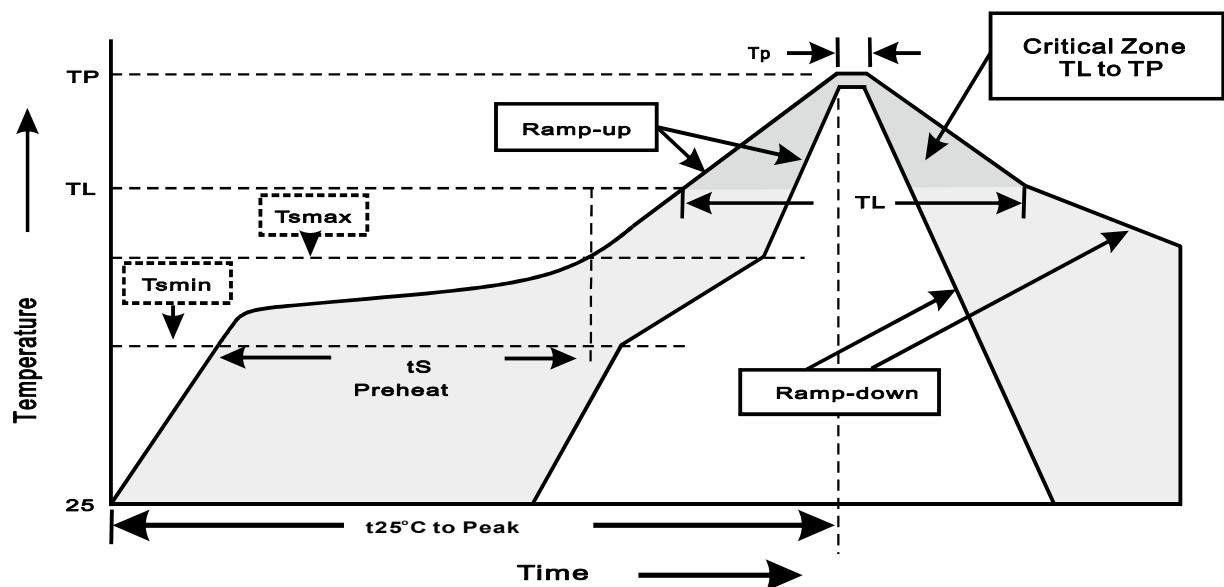
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## Reel packing

| PACKSGE        | REEL SIZE | REEL (pcs) | COMPONENT SPACING (m/m) | Box (pcs) | INNER BOX (m/m) | REEL DIA (m/m) | CARTON SIZE (m/m) | CARTON (pcs) |
|----------------|-----------|------------|-------------------------|-----------|-----------------|----------------|-------------------|--------------|
| DKA-1 / TO-252 | 13"       | 2,500      | 4.0                     | 5,000     | 335*335*38      | 330            | 350*350*225       | 25,000       |

## Suggested thermal profiles for soldering processes

- 1.Storage environment: Temperature=5°C~40°C Humidity=55%±25%
- 2.Reflow soldering of surface-mount devices



### 3.Reflow soldering

| Profile Feature                                                                                                                 | Soldering Condition         |
|---------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| Average ramp-up rate(T <sub>L</sub> to T <sub>P</sub> )                                                                         | <3°C/sec                    |
| Preheat<br>-Temperature Min(T <sub>smmin</sub> )<br>-Temperature Max(T <sub>smmax</sub> )<br>-Time(min to max)(t <sub>s</sub> ) | 150°C<br>200°C<br>60~120sec |
| T <sub>smmax</sub> to T <sub>L</sub><br>-Ramp-upRate                                                                            | <3°C/sec                    |
| Time maintained above:<br>-Temperature(T <sub>L</sub> )<br>-Time(t <sub>L</sub> )                                               | 217°C<br>60~260sec          |
| Peak Temperature(T <sub>P</sub> )                                                                                               | 255°C-0/+5°C                |
| Time within 5°C of actual Peak Temperature(t <sub>P</sub> )                                                                     | 10~30sec                    |
| Ramp-down Rate                                                                                                                  | <6°C/sec                    |
| Time 25°C to Peak Temperature                                                                                                   | <6minutes                   |