

## ULTRAFST RECOVERY RECTIFIERS

**Reverse Voltage - 400 V**

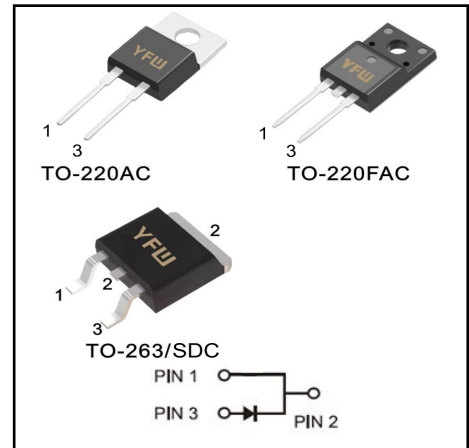
**Forward Current - 10 A**

### FEATURES

- ◆High speed switching capability
- ◆High current capability
- ◆High forward surge capability
- ◆Low power losses , High efficiency
- ◆For use in low voltage, high frequency inverters
- ◆Lead free in comply with EU RoHS 2011/65/EU directives

### MECHANICAL DATA

- ◆Case: TO-220AC TO-220FAC TO-263/SDC
- ◆Solder bath temperature 275°C maximum, 10s per JESD22-106



### Primary Characteristic

|                          |              |
|--------------------------|--------------|
| <b>I<sub>o</sub></b>     | <b>10A</b>   |
| <b>V<sub>RRM</sub></b>   | <b>400V</b>  |
| <b>I<sub>FSM</sub></b>   | <b>160A</b>  |
| <b>V<sub>F</sub></b>     | <b>0.95V</b> |
| <b>T<sub>J</sub> Max</b> | <b>150°C</b> |

### Maximum Ratings (Per Leg) at Ta=25°C unless otherwise specified

| Parameter                                                       | Symbols                                 | Value      | Units       |
|-----------------------------------------------------------------|-----------------------------------------|------------|-------------|
| Maximum Repetitive Peak Reverse Voltage                         | <b>V<sub>RRM</sub></b>                  | 400        | <b>V</b>    |
| Maximum RMS voltage                                             | <b>V<sub>RMS</sub></b>                  | 280        | <b>V</b>    |
| Maximum DC Blocking Voltage                                     | <b>V<sub>DC</sub></b>                   | 400        | <b>V</b>    |
| Maximum Average Forward Rectified Current                       | <b>I<sub>o</sub></b>                    | 10         | <b>A</b>    |
| Peak Forward Surge Current, 8.3ms Single Half Sine-wave         | <b>I<sub>FSM</sub></b>                  | 160        | <b>A</b>    |
| Operating Temperature Range                                     | <b>T<sub>J</sub></b>                    | -40 ~ +150 | <b>°C</b>   |
| Storage Temperature Range                                       | <b>T<sub>STG</sub></b>                  | -40 ~ +150 | <b>°C</b>   |
| Typical Thermal Resistance (Note1) TO-220AC TO-263/DC TO-220FAC | <b>R<sub>θJA</sub>/ R<sub>θJC</sub></b> | 2/4        | <b>°C/W</b> |

**Note1:** Thermal resistance from Junction to case per leg mounted on heatsink.

### Electrical Characteristics (Per Leg) unless otherwise specified

| Characteristics                                                                      |          | Symbols               | Value      |            | Units     |
|--------------------------------------------------------------------------------------|----------|-----------------------|------------|------------|-----------|
| Forward Voltage Drop(Note2)                                                          |          | <b>V<sub>F</sub></b>  | <b>Typ</b> | <b>Max</b> | <b>V</b>  |
| at IF=3A                                                                             | TA=25°C  |                       | 0.91       | -          |           |
|                                                                                      | TA=125°C |                       | 0.76       | -          |           |
| at IF=5A                                                                             | TA=25°C  |                       | 0.97       | -          |           |
|                                                                                      | TA=125°C |                       | 0.83       | -          |           |
| at IF=10A                                                                            | TA=25°C  |                       | 1.08       | 1.3        |           |
|                                                                                      | TA=125°C |                       | 0.95       | -          |           |
| Maximum Reverse Current at V <sub>R</sub> =400V                                      | TA=25°C  | <b>I<sub>R</sub></b>  | 0.007      | 1          | <b>uA</b> |
|                                                                                      | TA=125°C |                       | 5          | -          | <b>uA</b> |
| Maximum Reverse Recovery Time at IF=0.5A, I <sub>R</sub> =1A, I <sub>RR</sub> =0.25A |          | <b>T<sub>RR</sub></b> | -          | 35         | <b>nS</b> |

**Note2:** Pulse test: 300 μs pulse width, 1 % duty cycle

**RATINGS AND CHARACTERISTIC CURVES**

FIG. 1 MAXIMUM FORWARD CURRENT DERATING CURVE

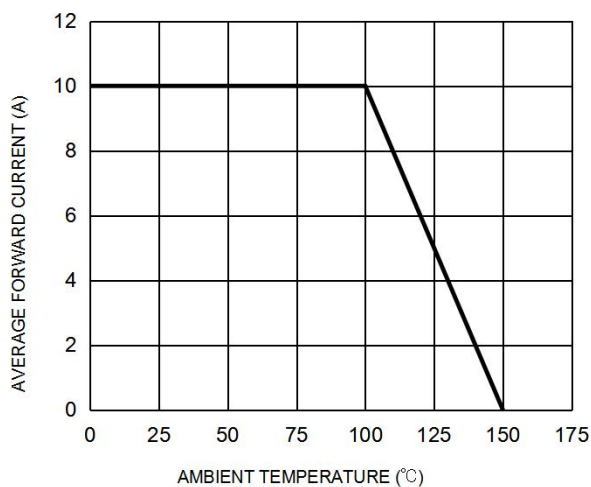


FIG. 2 MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT PER LEG

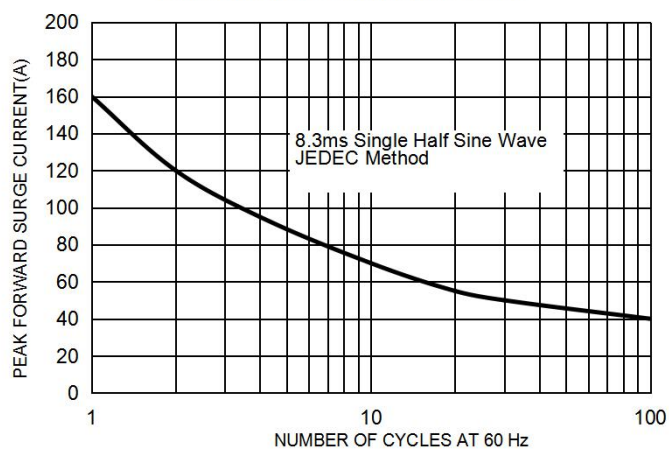


FIG. 3 TYPICAL FORWARD CHARACTERISTICS PER LEG

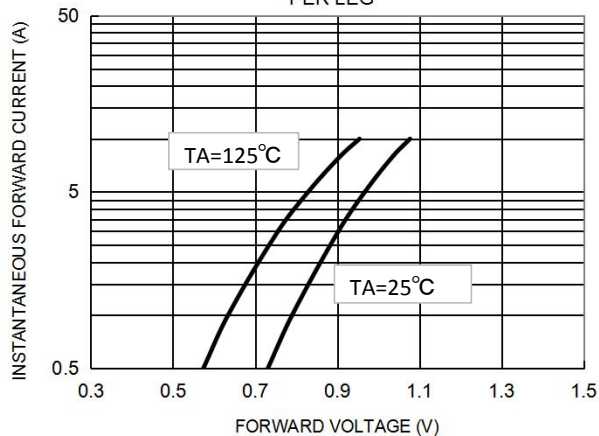
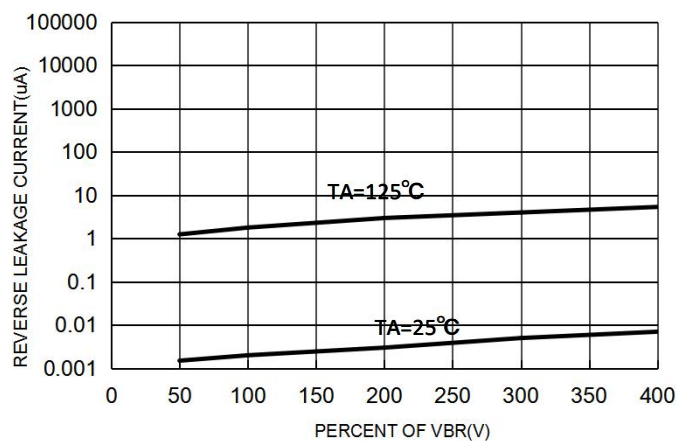
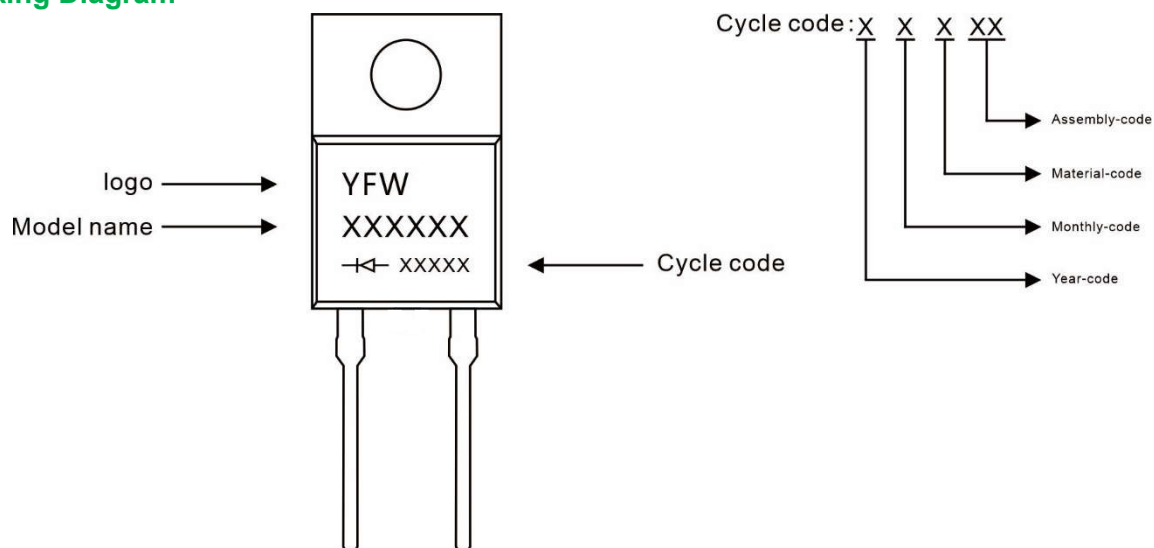


FIG. 4 TYPICAL REVERSE CHARACTERISTICS PER LEG



## Marking Diagram



## Ordering information

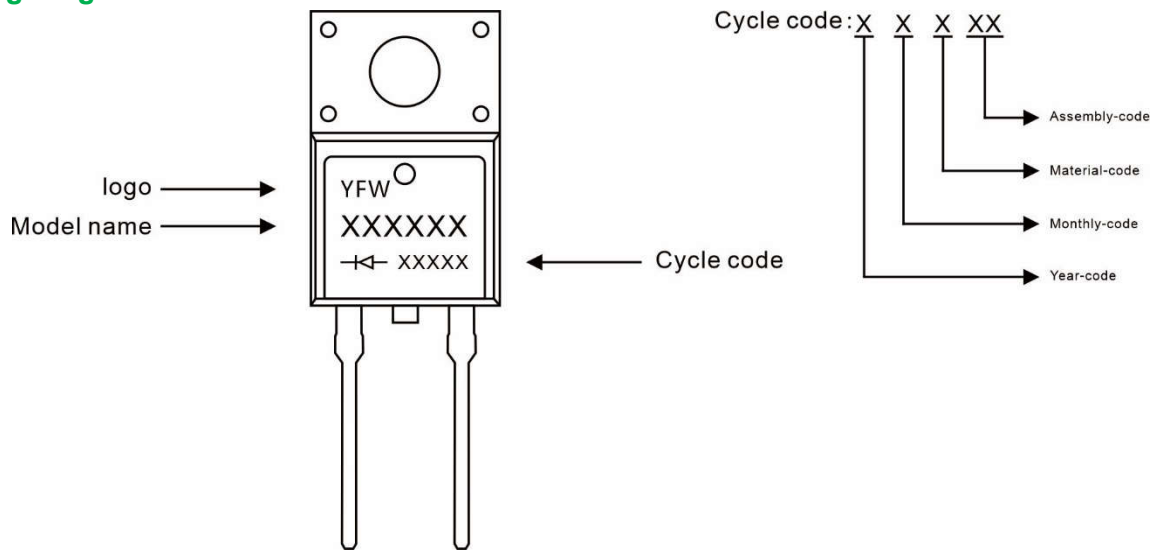
| Model name       | Package  | Unit Weight   | Base Quantity | Packing Quantity           |
|------------------|----------|---------------|---------------|----------------------------|
| <b>MUR1040AC</b> | TO-220AC | 0.067oz(1.9g) | 50pcs/tube    | 1000PCS/Box 5000PCS/Carton |

## Package Dimensions

### TO-220AC

| Symbol | Millimeter |       | Inches |       |
|--------|------------|-------|--------|-------|
|        | Min.       | Max.  | Min.   | Max.  |
| A      | 10.15      | 10.35 | 0.400  | 0.407 |
| B      | 2.65       | 2.95  | 0.104  | 0.116 |
| C      | 3.70       | 3.90  | 0.146  | 0.154 |
| D      | 28.5       | 29.5  | 1.12   | 1.16  |
| E      | 1.3        | 1.45  | 0.051  | 0.057 |
| F      | 0.8        | 1.1   | 0.031  | 0.043 |
| G      | 2.9        | 3.3   | 0.114  | 0.130 |
| H      | 15.0       | 16.0  | 0.591  | 0.630 |
| I      | 0.38       | 0.42  | 0.015  | 0.017 |
| J      | 4.45       | 4.55  | 0.175  | 0.179 |
| K      | 1.25       | 1.35  | 0.049  | 0.053 |
| L      | 6.35       | 6.55  | 0.250  | 0.258 |
| M      | Typ5.08    |       | Typ0.2 |       |
| N      | Typ2.54    |       | Typ0.1 |       |
| O      | 0.76       | 0.84  | 0.030  | 0.033 |
| P      | 3.1        | 3.3   | 0.122  | 0.130 |

## Marking Diagram



## Ordering information

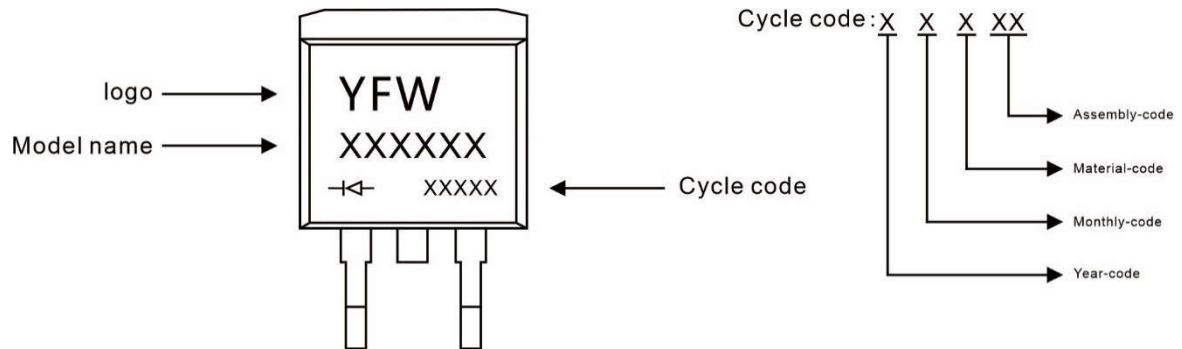
| Model name        | Package   | Unit Weight  | Base Quantity | Packing Quantity           |
|-------------------|-----------|--------------|---------------|----------------------------|
| <b>MUR1040FAC</b> | TO-220FAC | 0.06oz(1.7g) | 50pcs/tube    | 1000PCS/Box 5000PCS/Carton |

## Package Dimensions

### TO-220FAC

| Symbol | Millimeter |       | Inches  |       |
|--------|------------|-------|---------|-------|
|        | Min.       | Max.  | Min.    | Max.  |
| A      | 9.95       | 10.25 | 0.392   | 0.404 |
| B      | 2.95       | 3.25  | 0.116   | 0.128 |
| C      | 1.25       | 1.45  | 0.049   | 0.057 |
| E      | 12.95      | 13.25 | 0.51    | 0.52  |
| F      | 0.40       | 0.60  | 0.016   | 0.024 |
| G      | 1.30       | 1.45  | 0.051   | 0.057 |
| H      | TYP2.54    |       | TYP 0.1 |       |
| I      | TYP5.08    |       | TYP 0.2 |       |
| J      | 4.60       | 4.75  | 0.181   | 0.187 |
| K      | 2.45       | 2.65  | 0.097   | 0.104 |
| L      | 6.5        | 6.8   | 0.256   | 0.268 |
| M      | 15.4       | 16.0  | 0.606   | 0.630 |
| N      | 2.75       | 3.05  | 0.108   | 0.120 |
| O      | 0.45       | 0.55  | 0.018   | 0.022 |
| P      | 0.6        | 0.8   | 0.024   | 0.032 |
| Q      | 0.76       | 0.84  | 0.030   | 0.033 |

## Marking Diagram



## Ordering information

| Model name | Package | Unit Weight   | Base Quantity | Packing Quantity           |
|------------|---------|---------------|---------------|----------------------------|
| MUR1040SDC | TO-263  | 0.04oz(1.16g) | 800pcs/reel   | 1600pcs/box 8000pcs/Carton |

## Package Dimensions

### TO-263

| Dim | Millimeter |       | Inches |       |
|-----|------------|-------|--------|-------|
|     | Min.       | Max.  | Min.   | Max.  |
| A   | 4.30       | 4.70  | 0.169  | 0.185 |
| A1  | 0.00       | 0.15  | 0.000  | 0.006 |
| A2  | 4.30       | 4.55  | 0.169  | 0.179 |
| B   | 1.10       | 1.50  | 0.043  | 0.059 |
| b   | 0.70       | 0.90  | 0.028  | 0.035 |
| b1  | 1.20       | 1.50  | 0.047  | 0.059 |
| c   | 0.30       | 0.60  | 0.012  | 0.024 |
| c1  | 1.17       | 1.37  | 0.046  | 0.054 |
| D   | 9.90       | 10.20 | 0.390  | 0.402 |
| E   | 8.50       | 8.90  | 0.335  | 0.350 |
| e   | 2.44       | 2.64  | 0.096  | 0.104 |
| e1  | 4.88       | 5.28  | 0.192  | 0.208 |
| L   | 15.00      | 15.30 | 0.591  | 0.602 |
| L1  | 5.20       | 5.40  | 0.205  | 0.213 |
| L2  | 2.40       | 2.60  | 0.094  | 0.102 |
| L3  | 1.60       | 1.80  | 0.063  | 0.071 |

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