



## JPUR0512K

### EPI PLANAR ULTRAFAST SOFT RECOVERY RECTIFIER

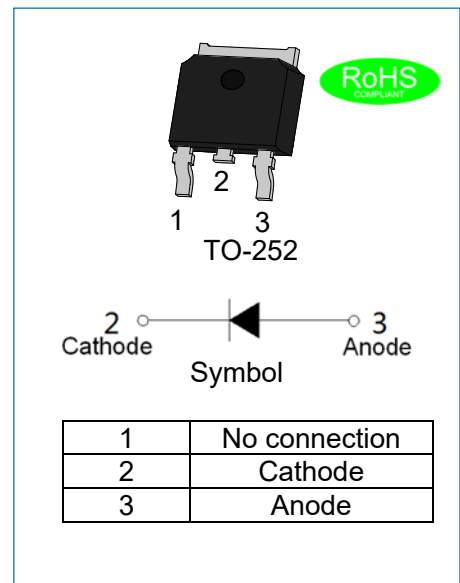
Rev.1.6

#### DESCRIPTION

- ✧ Plastic package has underwriters laboratory flammability classification 94V-0
- ✧ Lead free in comply with EU RoHS 2011/65/EU directives
- ✧ Low reverse leakage current
- ✧ Ultrafast recovery time and high speed switching
- ✧ Epitaxial planar technology
- ✧ 5th Generation soft fast recovery characteristics

#### MECHANICAL DATA

- ✧ Case: TO-252 molded plastic
- ✧ Terminals: Solder plated, solderable per J-STD-002
- ✧ Weight: 0.329 gram



#### ABSOLUTE MAXIMUM RATING (Rating at 25°C ambient temperature unless otherwise specified.)

| Parameter                                                                          | Symbol         | JPUR0512K   | Unit               |
|------------------------------------------------------------------------------------|----------------|-------------|--------------------|
| Maximum repetitive peak reverse voltage                                            | $V_{RRM}$      | 1200        | V                  |
| Maximum DC blocking voltage                                                        | $V_{DC}$       | 1200        | V                  |
| Average forward current at $T_{mb}=144^{\circ}\text{C}$                            | $I_{F(AV)}$    | 5           | A                  |
| Peak forward surge current: 8.3ms single half sine-wave superimposed on rated load | $I_{FSM}$      | 60          | A                  |
| Peak forward surge current: 10ms single half sine-wave superimposed on rated load  | $I_{FSM}$      | 55          | A                  |
| Junction temperature and storage temperature range                                 | $T_j, T_{stg}$ | -55 to +175 | $^{\circ}\text{C}$ |

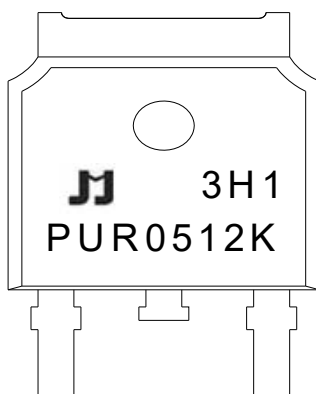
**ELECTRICAL CHARACTERISTICS**(Rating at 25°C ambient temperature unless otherwise specified.)

| Parameter                     |                                                             | Symbol   | Min. | Typ. | Max. | Unit    |
|-------------------------------|-------------------------------------------------------------|----------|------|------|------|---------|
| Forward voltage               | $I_F=5A, T_J=25^{\circ}C$                                   | $V_F$    | -    | 1.8  | 2.2  | V       |
|                               | $I_F=5A, T_J=150^{\circ}C$                                  |          | -    | 1.4  | -    |         |
| Reverse current               | $V_R=1200V, T_J=25^{\circ}C$                                | $I_R$    | -    | -    | 5    | $\mu A$ |
|                               | $V_R=1200V, T_J=150^{\circ}C$                               |          | -    | -    | 200  |         |
| Reverse recovery time         | $I_F=1A, V_R=30V,$<br>$di/dt=100A/\mu s, T_J=25^{\circ}C$   | $t_{rr}$ | -    | -    | 50   | ns      |
|                               | $I_F=5A, V_R=400V,$<br>$di/dt=500A/\mu s, T_J=25^{\circ}C$  |          | -    | 35   | -    |         |
|                               | $I_F=5A, V_R=400V,$<br>$di/dt=500A/\mu s, T_J=125^{\circ}C$ |          | -    | 75   | -    |         |
|                               | $I_F=5A, V_R=400V,$<br>$di/dt=500A/\mu s, T_J=150^{\circ}C$ |          | -    | 80   | -    |         |
| Peak reverse recovery current | $I_F=5A, V_R=400V,$<br>$di/dt=500A/\mu s, T_J=25^{\circ}C$  | $I_{RM}$ | -    | 7.8  | -    | A       |
|                               | $I_F=5A, V_R=400V,$<br>$di/dt=500A/\mu s, T_J=125^{\circ}C$ |          | -    | 12.6 | -    |         |
|                               | $I_F=5A, V_R=400V,$<br>$di/dt=500A/\mu s, T_J=150^{\circ}C$ |          | -    | 14   | -    |         |
| Recovered charge              | $I_F=5A, V_R=400V,$<br>$di/dt=500A/\mu s, T_J=25^{\circ}C$  | $Q_r$    | -    | 150  | -    | nC      |
|                               | $I_F=5A, V_R=400V,$<br>$di/dt=500A/\mu s, T_J=125^{\circ}C$ |          | -    | 550  | -    |         |
|                               | $I_F=5A, V_R=400V,$<br>$di/dt=500A/\mu s, T_J=150^{\circ}C$ |          | -    | 700  | -    |         |

**THERMAL RESISTANCES**

| Symbol         | Parameter                                         | Min. | Typ. | Max. | Unit          |
|----------------|---------------------------------------------------|------|------|------|---------------|
| $R_{th(j-mb)}$ | Thermal resistance from junction to mounting base | -    | -    | 2.5  | $^{\circ}C/W$ |
| $R_{th(j-a)}$  | Thermal resistance from junction to ambient       | -    | 60   | -    | $^{\circ}C/W$ |

## MARKING



|     |                                     |
|-----|-------------------------------------|
| PUR | Planar Ultrafast Recovery Rectifier |
| 05  | $I_{F(AV)}=5A$                      |
| 12  | $V_{RRM}:1200V$                     |
| K   | Package:TO-252                      |

xH1: Month, 1/2/3~9/A/B/C

3x1:

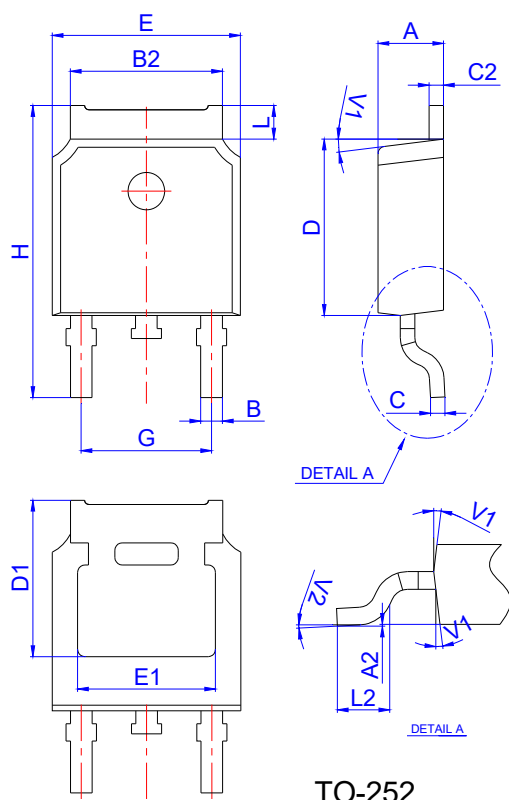
|      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|
| 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
| H    | I    | J    | K    | L    | M    | N    |
| 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | ...  |
| O    | P    | Q    | R    | S    | T    | ...  |

3Hx: Batch number

## ORDERING INFORMATION

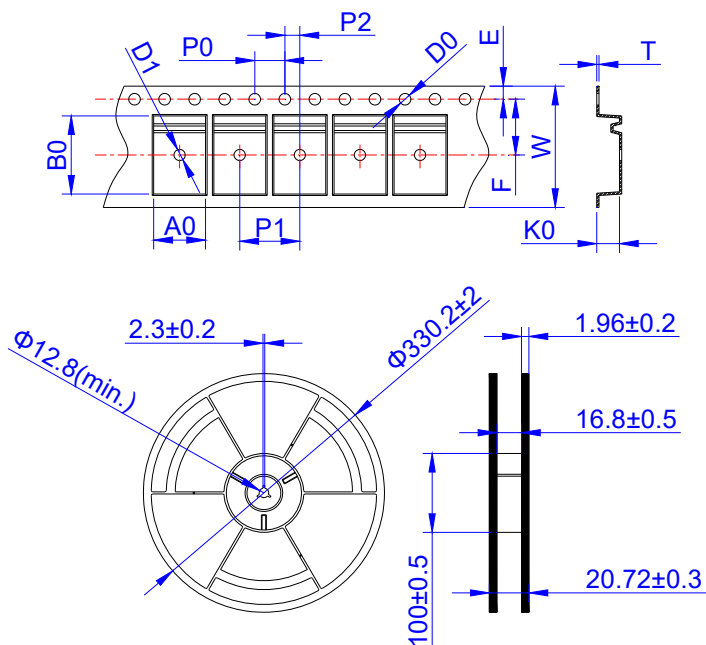
|                            |            |           |           |                |                 |                    |
|----------------------------|------------|-----------|-----------|----------------|-----------------|--------------------|
| J                          | P          | U         | R         | 05             | 12              | K                  |
| JieJie<br>Microelectronics | Epi planar | Ultrafast | Rectifier | $I_{F(AV)}=5A$ | $V_{RRM}:1200V$ | Package:<br>TO-252 |

## PACKAGE MECHANICAL DATA



| Ref. | Dimensions  |      |       |          |      |       |
|------|-------------|------|-------|----------|------|-------|
|      | Millimeters |      |       | Inches   |      |       |
|      | Min.        | Typ. | Max.  | Min.     | Typ. | Max.  |
| A    | 2.10        |      | 2.50  | 0.083    |      | 0.098 |
| A2   | 0           |      | 0.15  | 0        |      | 0.006 |
| B    | 0.66        |      | 0.86  | 0.026    |      | 0.034 |
| B2   | 5.18        |      | 5.48  | 0.202    |      | 0.216 |
| C    | 0.40        |      | 0.60  | 0.016    |      | 0.024 |
| C2   | 0.44        |      | 0.58  | 0.017    |      | 0.023 |
| D    | 5.90        |      | 6.30  | 0.232    |      | 0.248 |
| D1   | 5.30REF     |      |       | 0.209REF |      |       |
| E    | 6.40        |      | 6.80  | 0.252    |      | 0.268 |
| E1   | 4.63        |      |       | 0.182    |      |       |
| G    | 4.47        |      | 4.67  | 0.176    |      | 0.184 |
| H    | 9.50        |      | 10.70 | 0.374    |      | 0.421 |
| L    | 0.95        |      | 1.30  | 0.037    |      | 0.051 |
| L2   | 1.35        |      | 1.65  | 0.053    |      | 0.065 |
| V1   |             | 7°   |       |          | 7°   |       |
| V2   | 0°          |      | 6°    | 0°       |      | 6°    |

## REEL SPECIFICATION -TO-252



| Ref. | Dimensions  |             |
|------|-------------|-------------|
|      | Millimeters | Inches      |
| W    | Max:16.3    | Max:0.642   |
| E    | 1.75±0.10   | 0.069±0.004 |
| F    | 7.50±0.10   | 0.295±0.004 |
| D0   | 1.55±0.05   | 0.061±0.002 |
| D1   | Min:1.50    | Min:0.059   |
| P0   | 4.00±0.10   | 0.157±0.004 |
| P1   | 8.00±0.10   | 0.315±0.004 |
| P2   | 2.00±0.10   | 0.079±0.004 |
| A0   | 6.90±0.10   | 0.272±0.004 |
| B0   | 10.50±0.10  | 0.413±0.004 |
| K0   | 2.70±0.10   | 0.106±0.004 |
| T    | 0.30±0.05   | 0.012±0.002 |

| OUTLINE | UNIT WEIGHT<br>(g/PCS) TYP | REEL<br>(PCS) | PER CARTON<br>(PCS) | TAPE & REEL |
|---------|----------------------------|---------------|---------------------|-------------|
| TAPING  | 0.329                      | 2,500         | 25,000              | 13inch      |

## CHARACTERISTICS CURVE

FIG.1 Typical forward characteristics

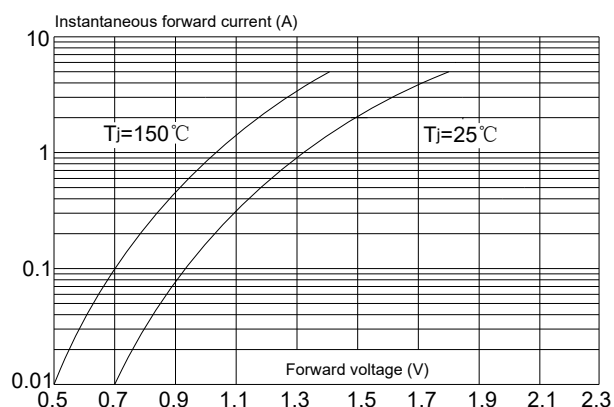


FIG.2 Typical reverse characteristics

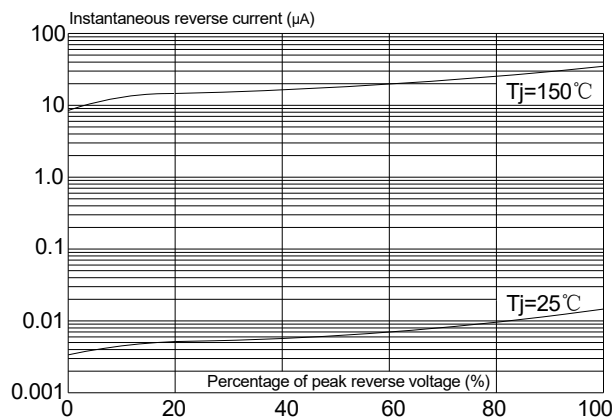


FIG.3 Maximum non-repetitive peak forward surge current(8.3ms single half sine-wave)

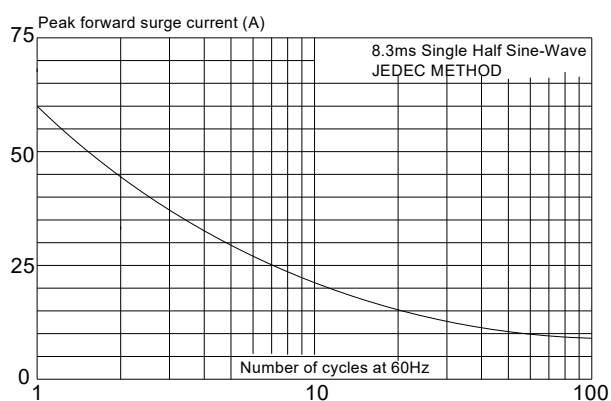


FIG.4 Maximum non-repetitive peak forward surge current(10ms single half sine-wave)

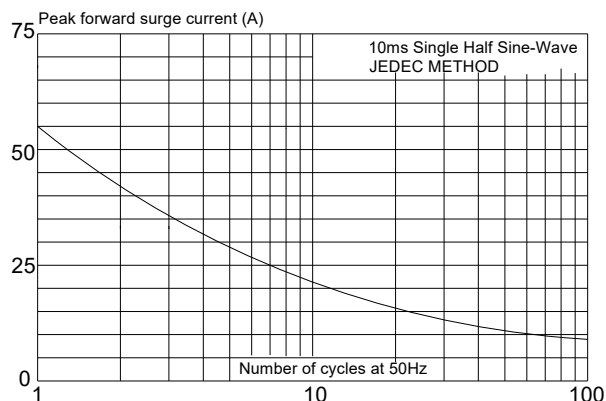


FIG.5 Forward current derating curve

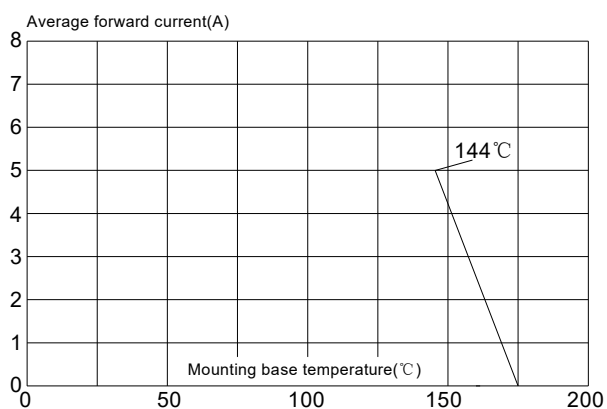
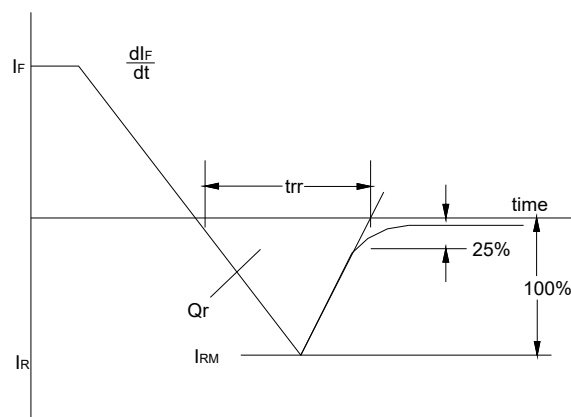


FIG.6 Reverse recovery definitions



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