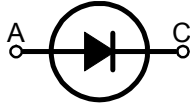


# MUR860S

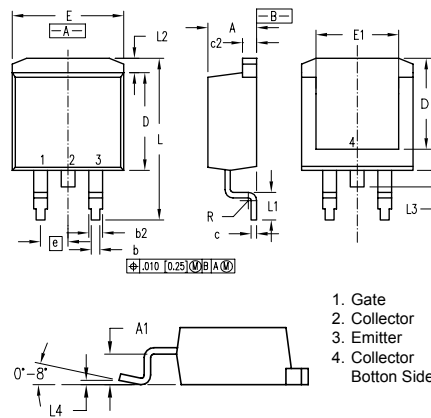
## Ultra Fast Recovery Diodes

C(TAB)



A=Anode, NC= No connection, TAB=Cathode

Dimensions TO-263(D<sup>2</sup>PAK)



1. Gate
2. Collector
3. Emitter
4. Collector Bottom Side

| Dim. | Millimeter |       | Inches   |      |
|------|------------|-------|----------|------|
|      | Min.       | Max.  | Min.     | Max. |
| A    | 4.06       | 4.83  | .160     | .190 |
| A1   | 2.03       | 2.79  | .080     | .110 |
| b    | 0.51       | 0.99  | .020     | .039 |
| b2   | 1.14       | 1.40  | .045     | .055 |
| c    | 0.46       | 0.74  | .018     | .029 |
| c2   | 1.14       | 1.40  | .045     | .055 |
| D    | 8.64       | 9.65  | .340     | .380 |
| D1   | 8.00       | 8.89  | .315     | .350 |
| E    | 9.65       | 10.29 | .380     | .405 |
| E1   | 6.22       | 8.13  | .245     | .320 |
| e    | 2.54 BSC   |       | .100 BSC |      |
| L    | 14.61      | 15.88 | .575     | .625 |
| L1   | 2.29       | 2.79  | .090     | .110 |
| L2   | 1.02       | 1.40  | .040     | .055 |
| L3   | 1.27       | 1.78  | .050     | .070 |
| L4   | 0          | 0.20  | 0        | .008 |
| R    | 0.46       | 0.74  | .018     | .029 |

|                | V <sub>RSM</sub> | V <sub>RRM</sub> |
|----------------|------------------|------------------|
|                | V                | V                |
| <b>MUR860S</b> | 600              | 600              |

| Symbol            | Test Conditions                                                            | Maximum Ratings      | Unit             |
|-------------------|----------------------------------------------------------------------------|----------------------|------------------|
| I <sub>FRMS</sub> | T <sub>VJ</sub> =T <sub>VJM</sub>                                          | 16                   | A                |
| I <sub>FAVM</sub> | T <sub>C</sub> =115°C; rectangular, d=0.5                                  | 8                    |                  |
| I <sub>FRM</sub>  | t <sub>p</sub> <10us; rep. rating, pulse width limited by T <sub>VJM</sub> | 130                  |                  |
| I <sub>FSM</sub>  | T <sub>VJ</sub> =45°C                                                      | t=10ms (50Hz), sine  | A                |
|                   |                                                                            | t=8.3ms (60Hz), sine |                  |
|                   | T <sub>VJ</sub> =150°C                                                     | t=10ms(50Hz), sine   |                  |
|                   |                                                                            | t=8.3ms(60Hz), sine  |                  |
| I <sup>2</sup> t  | T <sub>VJ</sub> =45°C                                                      | t=10ms (50Hz), sine  | A <sup>2</sup> s |
|                   |                                                                            | t=8.3ms (60Hz), sine |                  |
|                   | T <sub>VJ</sub> =150°C                                                     | t=10ms(50Hz), sine   |                  |
|                   |                                                                            | t=8.3ms(60Hz), sine  |                  |
| T <sub>VJ</sub>   |                                                                            | -40...+150           | °C               |
| T <sub>VJM</sub>  |                                                                            | 150                  |                  |
| T <sub>stg</sub>  |                                                                            | -40...+150           |                  |
| P <sub>tot</sub>  | T <sub>C</sub> =25°C                                                       | 50                   | W                |
| M <sub>d</sub>    | mounting torque                                                            | 0.4...0.6            | Nm               |
| Weight            |                                                                            | 2                    | g                |

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# MUR860S

## Ultra Fast Recovery Diodes

| Symbol                                                                        | Test Conditions                                                                                                       | Characteristic Values |      | Unit             |
|-------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|-----------------------|------|------------------|
|                                                                               |                                                                                                                       | typ.                  | max. |                  |
| <b>I<sub>R</sub></b>                                                          | $T_{VJ}=25^{\circ}\text{C}; V_R=V_{RRM}$                                                                              |                       | 20   | $\mu\text{A}$    |
|                                                                               | $T_{VJ}=25^{\circ}\text{C}; V_R=0.8 \cdot V_{RRM}$                                                                    |                       | 10   | $\mu\text{A}$    |
|                                                                               | $T_{VJ}=125^{\circ}\text{C}; V_R=0.8 \cdot V_{RRM}$                                                                   |                       | 1.5  | $\text{mA}$      |
| <b>V<sub>F</sub></b>                                                          | $I_F=8\text{A}; T_{VJ}=150^{\circ}\text{C}$                                                                           |                       | 1.3  | V                |
|                                                                               | $T_{VJ}=25^{\circ}\text{C}$                                                                                           |                       | 1.5  |                  |
| <b>V<sub>TO</sub></b>                                                         | For power-loss calculations only                                                                                      |                       | 0.98 | V                |
| <b>r<sub>T</sub></b>                                                          | $T_{VJ}=T_{VJM}$                                                                                                      |                       | 28.7 | $\text{m}\Omega$ |
| <b>R<sub>thJC</sub></b><br><b>R<sub>thCK</sub></b><br><b>R<sub>thJA</sub></b> |                                                                                                                       | 0.5                   | 2.5  | K/W              |
|                                                                               |                                                                                                                       |                       | 60   |                  |
| <b>t<sub>rr</sub></b>                                                         | $I_F=1\text{A}; -di/dt=50\text{A}/\mu\text{s}; V_R=30\text{V}; T_{VJ}=25^{\circ}\text{C}$                             | 35                    | 50   | ns               |
| <b>I<sub>RM</sub></b>                                                         | $V_R=350\text{V}; I_F=8\text{A}; -di_F/dt=64\text{A}/\mu\text{s}; L \leq 0.05\mu\text{H}; T_{VJ}=100^{\circ}\text{C}$ | 2.5                   | 2.8  | A                |

### FEATURES

- \* International standard package JEDEC TO-263
- \* Glass passivated chips
- \* Very short recovery time
- \* Extremely low switching losses
- \* Low I<sub>RM</sub>-values
- \* Soft recovery behaviour
- \* RoHS compliant

### APPLICATIONS

- \* Antiparallel diode for high frequency switching devices
- \* Antisaturation diode
- \* Snubber diode
- \* Free wheeling diode in converters and motor control circuits
- \* Rectifiers in switch mode power supplies (SMPS)
- \* Inductive heating and melting
- \* Uninterruptible power supplies (UPS)
- \* Ultrasonic cleaners and welders

### ADVANTAGES

- \* High reliability circuit operation
- \* Low voltage peaks for reduced protection circuits
- \* Low noise switching
- \* Low losses
- \* Operating at lower temperature or space saving by reduced cooling

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# MUR860S

## Ultra Fast Recovery Diodes

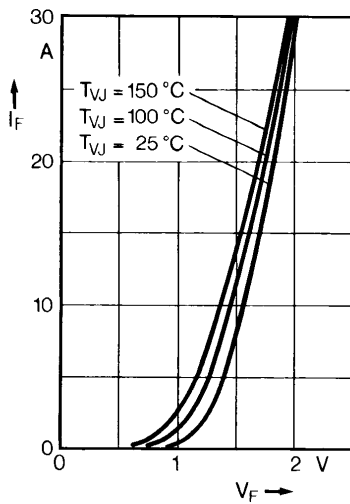


Fig. 1 Forward current versus voltage drop.

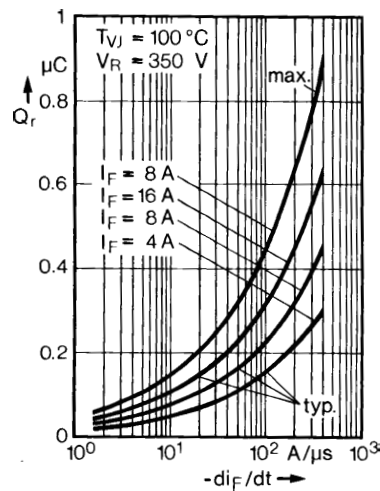


Fig. 2 Recovery charge versus  $-di_F/dt$ .

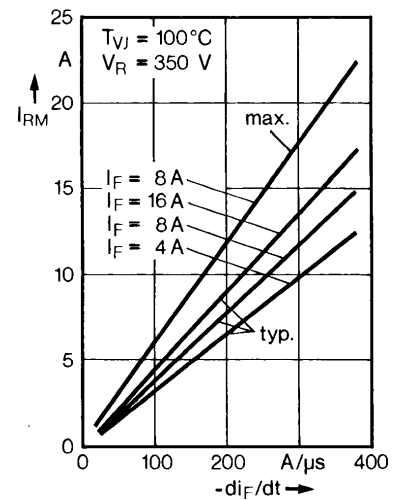


Fig. 3 Peak reverse current versus  $-di_F/dt$ .

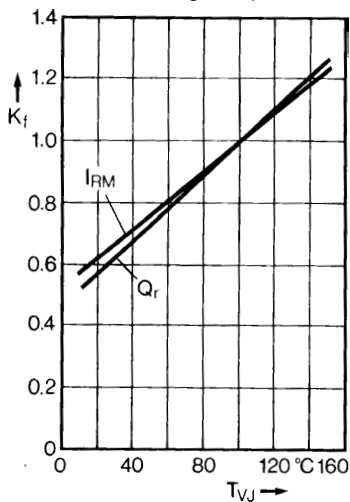


Fig. 4 Dynamic parameters versus junction temperature.

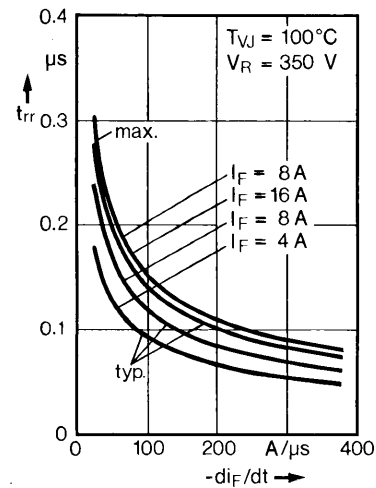


Fig. 5 Recovery time versus  $-di_F/dt$ .

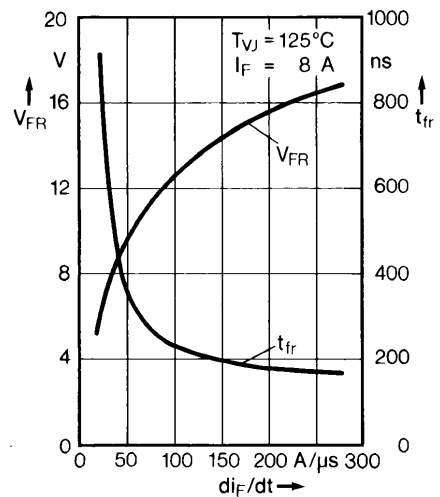


Fig. 6 Peak forward voltage versus  $di_F/dt$ .

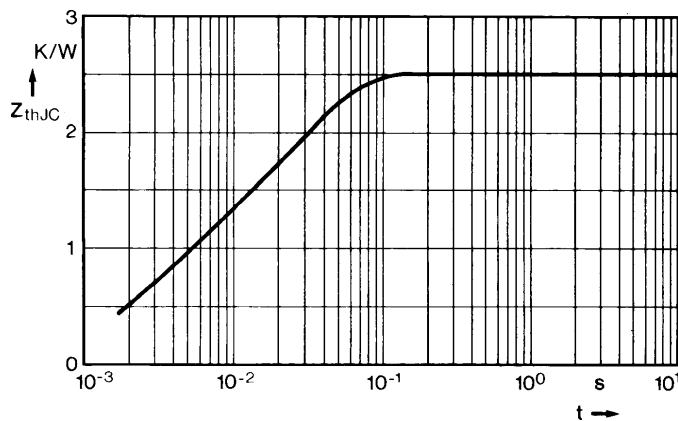


Fig. 7 Transient thermal impedance junction to case.

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