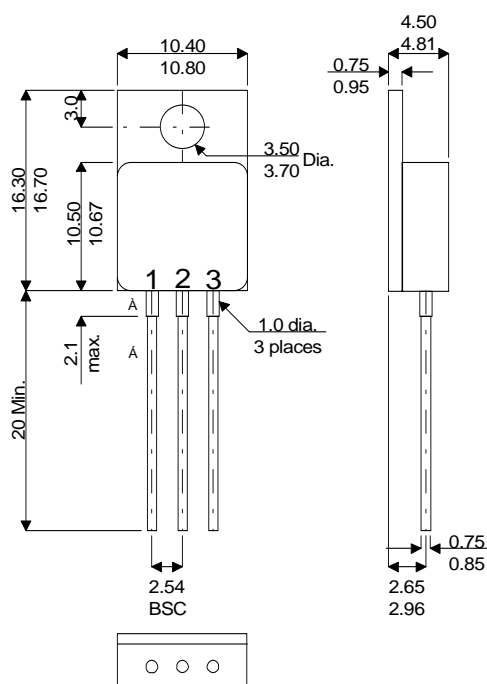


**MECHANICAL DATA**

Dimensions in mm (inches)


**TO257 Flexilead – Metal Package**

Pin 1 – Gate      Pin 2 – Drain      Pin 3 – Source

**N-CHANNEL  
POWER MOSFET  
FOR HI-REL  
APPLICATIONS**

|              |              |
|--------------|--------------|
| $V_{DS}$     | <b>100V</b>  |
| $I_{D(max)}$ | <b>18A</b>   |
| $R_{DS(on)}$ | <b>.044Ω</b> |

**FEATURES**

- HERMETICALLY SEALED TO257 METAL PACKAGE
- SIMPLE DRIVE REQUIREMENTS
- LIGHTWEIGHT
- SCREENING OPTIONS AVAILABLE
- ALL LEADS ISOLATED FROM CASE

**ABSOLUTE MAXIMUM RATINGS** ( $T_{case} = 25^{\circ}C$  unless otherwise stated)

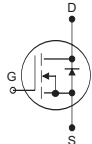
|                 |  |                         |
|-----------------|--|-------------------------|
| $V_{GS}$        | Gate – Source Voltage  | $\pm 20V$               |
| $I_D$           | Continuous Drain Current ( $V_{GS} = 0, T_{case} = 25^{\circ}C$ )  | 18A                     |
| $I_D$           | Continuous Drain Current ( $V_{GS} = 0, T_{case} = 100^{\circ}C$ ) | 18A                     |
| $I_{DM}$        | Pulsed Drain Current <sup>1</sup>                                  | 72A                     |
| $P_D$           | Power Dissipation @ $T_{case} = 25^{\circ}C$                       | 100W                    |
|                 | Linear Derating Factor   | 0.8W/ $^{\circ}C$       |
| $T_J, T_{stg}$  | Operating and Storage Temperature Range                            | -55 to 150 $^{\circ}C$  |
| $T_L$           | Package Mounting Surface Temperature (for 5 sec)                   | 300 $^{\circ}C$         |
| $R_{\theta JC}$ | Thermal Resistance Junction to Case                                | 1.25 $^{\circ}C/W$ max. |

**Notes**

 1) Pulse Test: Pulse Width  $\leq 300ms$ ,  $\delta \leq 2\%$ 

Semelab Plc reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.

**ELECTRICAL CHARACTERISTICS** ( $T_{amb} = 25^{\circ}\text{C}$  unless otherwise stated)

| STATIC ELECTRICAL RATINGS   |  |      |      |      |               |  |  |
|---|--|------|------|------|---------------|--|--|
| Parameter   | Test Conditions  | Min. | Typ. | Max. | Unit          |  |  |
| $BV_{DSS}$ Drain – Source Breakdown Voltage                         | $V_{GS} = 0$ $I_D = 250\mu\text{A}$  | 100  |      |      | V             |  |  |
| $V_{GS(th)}$ Gate Threshold Voltage                                 | $V_{DS} = V_{GS}$ $I_D = 250\mu\text{A}$   | 2.0  |      | 4.0  |               |  |  |
| $I_{GSS}$ Gate-Body Leakage Forward                                 | $V_{GS} \leq 20\text{V}$   |      |      | 100  | nA            |  |  |
| $I_{GSS}$ Gate-Body Leakage Reverse                                 | $V_{GS} = -20\text{V}$   |      |      | -100 |               |  |  |
| $I_{DSS}$ Zero Gate Voltage Drain Current                           | $V_{DS} = 100\text{V}, V_{GS} = 0\text{V}$   |      |      | 25   | $\mu\text{A}$ |  |  |
|   | $V_{DS} = 80\text{V}, V_{GS} = 0\text{V}$<br>$T_C = 125^{\circ}\text{C}$             |      |      | 250  |               |  |  |
| $R_{DS(on)}$ Static Drain – Source On–State Resistance <sup>1</sup> | $V_{GS} = 10\text{V}$ $I_D = 18\text{A}$   |      |      | 0.44 | $\Omega$      |  |  |
| DYNAMIC CHARACTERISTICS   |  |      |      |      |               |  |  |
| $G_{fs}$ Forward Transductance <sup>1</sup>                         | $V_{DS} = 25\text{V}$ $I_D = 18\text{A}$   | 14   |      |      | S             |  |  |
| $C_{iss}$ Input Capacitance   | $V_{GS} = 0\text{V}$   |      | 1872 |      | pF            |  |  |
| $C_{oss}$ Output Capacitance  | $V_{DS} = 25\text{V}$  |      | 463  |      |               |  |  |
| $C_{rss}$ Reverse Transfer Capacitance                              | $F = 1\text{MHz}$  |      | 234  |      |               |  |  |
| $t_{d(on)}$ Turn–On Delay Time                                      | $V_{DD} = 50\text{V}$ $I_D = 18\text{A}$<br>$R_G = 3.6\Omega$ $V_{GS} = 10\text{V}$  |      | 19   |      | ns            |  |  |
| $t_r$ Rise Time   |  |      | 85   |      |               |  |  |
| $t_{d(off)}$ Turn–Off Delay Time                                    |  |      | 65   |      |               |  |  |
| $t_f$ Fall Time   |  |      | 54   |      |               |  |  |
| SOURCE – DRAIN DIODE CHARACTERISTICS                                |  |      |      |      |               |  |  |
| $I_S$ Continuous Source Current (Body Diode)                        | Modified MOSPOWER symbol showing the integral P-N Junction rectifier                 |      |      | 18   | A             |  |  |
| $I_{SM}$ Source Current <sup>1</sup> (Body Diode)                   |  |      |      | 72   |               |  |  |
| $V_{SD}$ Diode Forward Voltage                                      | $I_S = 18\text{A}, V_{GS} = 0\text{V}, T_C = 25^{\circ}\text{C}$                     |      |      | 1.3  | V             |  |  |
| $t_{rr}$ Reverse Recovery Time                                      | $T_J = 25^{\circ}\text{C}$ $I_F = 18\text{A}$  |      |      | 270  | ns            |  |  |
| $Q_{rr}$ Reverse Recovery Charge                                    | $di / dt = 100\text{A}/\mu\text{s}$  |      |      | 1.8  | $\mu\text{C}$ |  |  |

**Notes**

 1) Pulse Test: Pulse Width  $\leq 300\text{ms}$ ,  $\delta \leq 2\%$