

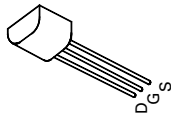
P-CHANNEL ENHANCEMENT  
MODE VERTICAL DMOS FET

ISSUE 2 – MARCH 94

FEATURES

- \* 450 Volt  $V_{DS}$
- \*  $R_{DS(on)} = 150\Omega$

ZVP0545A



E-Line  
TO92 Compatible

ABSOLUTE MAXIMUM RATINGS.

| PARAMETER                                                | SYMBOL         | VALUE       | UNIT               |
|----------------------------------------------------------|----------------|-------------|--------------------|
| Drain-Source Voltage                                     | $V_{DS}$       | -450        | V                  |
| Continuous Drain Current at $T_{amb}=25^{\circ}\text{C}$ | $I_D$          | -45         | mA                 |
| Pulsed Drain Current                                     | $I_{DM}$       | -400        | mA                 |
| Gate Source Voltage                                      | $V_{GS}$       | $\pm 20$    | V                  |
| Power Dissipation at $T_{amb}=25^{\circ}\text{C}$        | $P_{tot}$      | 700         | mW                 |
| Operating and Storage Temperature Range                  | $T_j, T_{stg}$ | -55 to +150 | $^{\circ}\text{C}$ |

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

| PARAMETER                                   | SYMBOL       | MIN. | MAX.      | UNIT                | CONDITIONS.                                                                                                                 |
|---------------------------------------------|--------------|------|-----------|---------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Drain-Source Breakdown Voltage              | $BV_{DSS}$   | -450 |           | V                   | $I_D = -1\text{mA}$ , $V_{GS} = 0\text{V}$                                                                                  |
| Gate-Source Threshold Voltage               | $V_{GS(th)}$ | -1.5 | -4.5      | V                   | $ID = -1\text{mA}$ , $V_{DS} = V_{GS}$                                                                                      |
| Gate-Body Leakage                           | $I_{GSS}$    |      | 20        | nA                  | $V_{GS} = \pm 20\text{V}$ , $V_{DS} = 0\text{V}$                                                                            |
| Zero Gate Voltage Drain Current             | $I_{DSS}$    |      | -20<br>-2 | $\mu\text{A}$<br>mA | $V_{DS} = -450\text{V}$ , $V_{GS} = 0$<br>$V_{DS} = -360\text{V}$ , $V_{GS} = 0\text{V}$ ,<br>$T = 125^{\circ}\text{C}$ (2) |
| On-State Drain Current(1)                   | $I_{D(on)}$  | -100 |           | mA                  | $V_{DS} = -25\text{V}$ , $V_{GS} = -10\text{V}$                                                                             |
| Static Drain-Source On-State Resistance (1) | $R_{DS(on)}$ |      | 150       | $\Omega$            | $V_{GS} = -10\text{V}$ , $I_D = -50\text{mA}$                                                                               |
| Forward Transconductance (1)(2)             | $g_{fs}$     | 40   |           | mS                  | $V_{DS} = -25\text{V}$ , $I_D = -50\text{mA}$                                                                               |
| Input Capacitance (2)                       | $C_{iss}$    |      | 120       | pF                  | $V_{DS} = -25\text{V}$ , $V_{GS} = 0\text{V}$ , $f = 1\text{MHz}$                                                           |
| Common Source Output Capacitance (2)        | $C_{oss}$    |      | 20        | pF                  |                                                                                                                             |
| Reverse Transfer Capacitance (2)            | $C_{rss}$    |      | 5         | pF                  |                                                                                                                             |
| Turn-On Delay Time (2)(3)                   | $t_{d(on)}$  |      | 10        | ns                  | $V_{DD} = -25\text{V}$ , $I_D = -50\text{mA}$                                                                               |
| Rise Time (2)(3)                            | $t_r$        |      | 15        | ns                  |                                                                                                                             |
| Turn-Off Delay Time (2)(3)                  | $t_{d(off)}$ |      | 15        | ns                  |                                                                                                                             |
| Fall Time (2)(3)                            | $t_f$        |      | 20        | ns                  |                                                                                                                             |

(1) Measured under pulsed conditions. Width=300 $\mu\text{s}$ . Duty cycle  $\leq 2\%$

(2) Sample test.