

P-CHANNEL ENHANCEMENT MODE VERTICAL DMOS FET

ZVP4105A

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FEATURES

- * 50 Volt V_{DS}
- * $R_{DS(on)}=10\Omega$
- * Low threshold



E-Line
TO92 Compatible

ABSOLUTE MAXIMUM RATINGS.

| PARAMETER | SYMBOL | VALUE | UNIT |
|---|----------------|-------------|-------------|
| Drain-Source Voltage | V_{DS} | -50 | V |
| Continuous Drain Current at $T_{amb}=25^{\circ}C$ | I_D | -175 | mA |
| Pulsed Drain Current | I_{DM} | -520 | mA |
| Gate Source Voltage | V_{GS} | ± 20 | V |
| Power Dissipation at $T_{amb}=25^{\circ}C$ | P_{tot} | 625 | mW |
| Operating and Storage Temperature Range | $T_j; T_{stg}$ | -55 to +150 | $^{\circ}C$ |

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

| PARAMETER | SYMBOL | MIN. | MAX. | UNIT | CONDITIONS. |
|---|--------------|------|--------------------|--------------------------|---|
| Drain-Source Breakdown Voltage | BV_{DSS} | -50 | | V | $I_D=-0.25mA, V_{GS}=0V$ |
| Gate-Source Threshold Voltage | $V_{GS(th)}$ | -0.8 | -2.0 | V | $I_D=-1mA, V_{DS}=V_{GS}$ |
| Gate-Body Leakage | I_{GSS} | | 10 | nA | $V_{GS}=\pm 20V, V_{DS}=0V$ |
| Zero Gate Voltage Drain Current | I_{DSS} | | -15 -60 -100 | μA μA nA | $V_{DS}=-50V, V_{GS}=0V$ $V_{DS}=-50V, V_{GS}=0V, T=125^{\circ}C(2)$ $V_{DS}=-25V, V_{GS}=0V$ |
| Static Drain-Source On-State Resistance (1) | $R_{DS(on)}$ | | 10 | Ω | $V_{GS}=-5V, I_D=-100mA$ |
| Forward Transconductance (1)(2) | g_{fs} | 50 | | mS | $V_{DS}=-25V, I_D=-100mA$ |
| Input Capacitance (2)(4) | C_{iss} | | 40 | pF | $V_{DS}=-25V, V_{GS}=0V, f=1MHz$ |
| Common Source Output Capacitance (2)(4) | C_{oss} | | 15 | pF | |
| Reverse Transfer Capacitance (2)(4) | C_{rss} | | 6 | pF | |
| Turn-On Delay Time (2)(3)(4) | $t_{d(on)}$ | | 10 | ns | $V_{DD}=-30V, I_D=-270mA$ |
| Rise Time (2)(3)(4) | t_r | | 10 | ns | |
| Turn-Off Delay Time (2)(3)(4) | $t_{d(off)}$ | | 18 | ns | |
| Fall Time (2)(3)(4) | t_f | | 25 | ns | |

(1) Measured under pulsed conditions. Width=300 μs . Duty cycle $\leq 2\%$

(2) Sample test.

(3) Switching times measured with 50 Ω source impedance and <5ns rise time on a pulse generator