



## P-Channel Enhancement-Mode Vertical DMOS FETs

### Ordering Information

| $BV_{DSS} /$<br>$BV_{DGS}$ | $R_{DS(ON)}$<br>(max) | $I_{D(ON)}$<br>(min) | Order Number / Package |
|----------------------------|-----------------------|----------------------|------------------------|
|                            |                       |                      | TO-92                  |
| -80V                       | 5.0Ω                  | -1.1A                | VP0808L                |

### Features

- Free from secondary breakdown
- Low power drive requirement
- Ease of paralleling
- Low  $C_{ISS}$  and fast switching speeds
- Excellent thermal stability
- Integral Source-Drain diode
- High input impedance and high gain
- Complementary N- and P-channel devices

### Applications

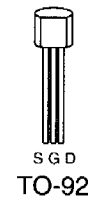
- Motor controls
- Converters
- Amplifiers
- Switches
- Power supply circuits
- Drivers (relays, hammers, solenoids, lamps, memories, displays, bipolar transistors, etc.)

### Absolute Maximum Ratings

|                                   |                 |
|-----------------------------------|-----------------|
| Drain-to-Source Voltage           | $BV_{DSS}$      |
| Drain-to-Gate Voltage             | $BV_{DGS}$      |
| Gate-to-Source Voltage            | ± 30V           |
| Operating and Storage Temperature | -55°C to +150°C |
| Soldering Temperature*            | 300°C           |

\* Distance of 1.6 mm from case for 10 seconds.

### Package Option



Note: See Package Outline section for dimensions.

## Thermal Characteristics

| Package | $I_D$ (continuous)* | $I_D$ (pulsed) | Power Dissipation | $\theta_{jc}$<br>°C/W | $\theta_{ja}$<br>°C/W |
|---------|---------------------|----------------|-------------------|-----------------------|-----------------------|
| TO-92   | -0.28A              | -3A            | 1W                | 125                   | 170                   |

\*  $I_D$  (continuous) is limited by max rated  $T_j$ .

## Electrical Characteristics (@ 25°C unless otherwise specified)

| Symbol       | Parameter                                  | Min  | Typ  | Max  | Unit      | Conditions   |
|--------------|--|------|------|------|-----------|--|
| $BV_{DSS}$   | Drain-to-Source Breakdown Voltage          | -80  |      |      | V         | $V_{GS} = 0V, I_D = -10\mu A$                                    |
| $V_{GS(th)}$ | Gate Threshold Voltage                     | -1.0 |      | -4.5 | V         | $V_{GS} = V_{DS}, I_D = -1mA$                                    |
| $I_{GSS}$    | Gate Body Leakage                          |      |      | -100 | nA        | $V_{GS} = \pm 20V, V_{DS} = 0V$                                  |
| $I_{DSS}$    | Zero Gate Voltage Drain Current            |      |      | -10  | $\mu A$   | $V_{GS} = 0V, V_{DS} = \text{Max Rating}$                        |
|              |  |      |      | -500 |           | $V_{GS} = 0V, V_{DS} = \text{Max Rating}$<br>$T_A = 125^\circ C$ |
| $I_{D(ON)}$  | ON-State Drain Current                     | -1.1 |      |      | A         | $V_{GS} = -10V, V_{DS} = -15V$                                   |
| $R_{DS(ON)}$ | Static Drain-to-Source ON-State Resistance |      |      | 5.0  | $\Omega$  | $V_{GS} = -10V, I_D = -1A$                                       |
| $G_{FS}$     | Forward Transconductance                   | 200  |      |      | $m\Omega$ | $V_{DS} = -10V, I_D = -0.5A$                                     |
| $C_{ISS}$    | Input Capacitance                          |      |      | 150  | pF        | $V_{GS} = 0V, V_{DS} = -25V$<br>$f = 1MHz$                       |
| $C_{OSS}$    | Common Source Output Capacitance           |      |      | 60   |           |  |
| $C_{RSS}$    | Reverse Transfer Capacitance               |      |      | 25   |           |  |
| $t_{d(ON)}$  | Turn-ON Delay Time                         |      |      | 15   | ns        | $V_{DD} = -25V, I_D = -0.5A$<br>$R_{GEN} = 25\Omega$             |
| $t_r$        | Rise Time                                  |      |      | 40   |           |  |
| $t_{d(OFF)}$ | Turn-OFF Time                              |      |      | 30   |           |  |
| $t_f$        | Fall Time                                  |      |      | 30   |           |  |
| $V_{SD}$     | Diode Forward Voltage Drop                 |      | -1.2 |      |           |  |

### Notes:

- All D.C. parameters 100% tested at 25°C unless otherwise stated. (Pulse test: 300 $\mu s$  pulse, 2% duty cycle.)
- All A.C. parameters sample tested.

## Switching Waveforms and Test Circuit

