

N-CHANNEL MOSFET (80V/80A, $R_{ds}=8m\Omega$)

Features:

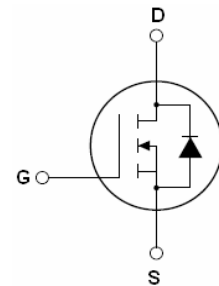
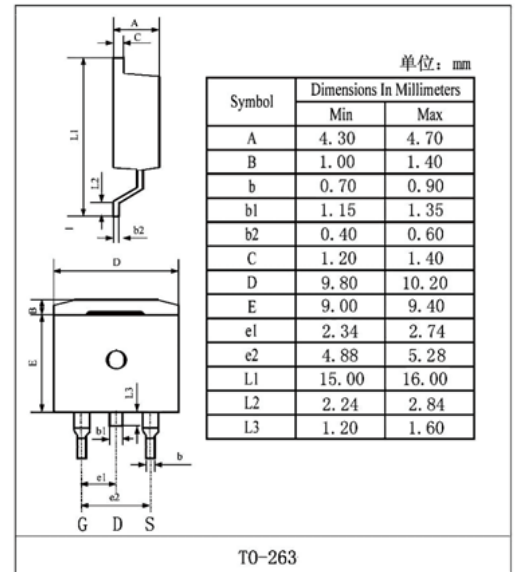
- Advanced trench process technology
- Special designed for Convertors and power controls
- High density cell design for ultra low R_{ds}
- Fully characterized Avalanche voltage and current
- Avalanche Energy 100% test

Description:

The FTK80N08 is a new generation of middle voltage and high current N-Channel enhancement mode trench power MOSFET. This new technology increases the cell density and reduces the on-resistance; its typical R_{ds} can reduce to 6.5mohm.

Application:

- Power switching application



Absolute Maximum Ratings

| Parameter | Symbol | Rating | Unit |
|--|------------------------|------------|------------|
| Drain-Source Voltage | V_{DSS} | 80 | V |
| Drain Current | $I_D(T_C=25^\circ C)$ | 80 | A |
| Drain Current | $I_D(T_C=100^\circ C)$ | 72 | A |
| Peak Drain Current | I_{DM} | 320 | A |
| Gate-Source Voltage | V_{GSS} | ± 20 | V |
| Repetitive Avalanche Energy | E_{AS} | 1164 | mJ |
| Repetitive Avalanche Energy | E_{AR} | 13.1 | mJ |
| Avalanche Current | I_{AR} | 75 | A |
| Total Power Dissipation | $P_D(T_C=25^\circ C)$ | 165 | W |
| Junction and Storage Temperature Range | T_J, T_{STG} | -55 to 150 | $^\circ C$ |

Thermal Resistance

| | Parameter | Min. | Typ. | Max. | Units |
|-----------------|---------------------|------|------|------|-------|
| $R_{\theta JC}$ | Junction-to-case | — | 0.83 | — | C/W |
| $R_{\theta JA}$ | Junction-to-ambient | — | — | 62 | |



Electrical Characteristics(Ta=25°C)

| Parameter | Symbol | Test Conditions | | Min | Typ | Max | Unit |
|-----------------------------------|--------------|--|--------------------------|-----|------|-----------|------------|
| Zero Gate Voltage Drain Current | BV_{DSS} | $V_{GS}=0V$ | $I_D=250\mu A$ | 80 | | | V |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS}=75V$ | $V_{GS}=0V$ | | | 1 | μA |
| | | $V_{DS}=75V$ $T_C=125^\circ C$ | $V_{GS}=0V$ | | | 10 | μA |
| Gate-Body Leakage Current Forward | I_{GSS} | $V_{GS}=\pm 20V$ | $V_{DS}=0V$ | | | ± 0.1 | μA |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS}=V_{GS}$ | $I_D=250\mu A$ | 2 | | 4 | V |
| Static Drain-Source On-Resistance | $R_{DS(on)}$ | $V_{GS}=10V$ | $I_D=40A$ | | 6.5 | 8 | m Ω |
| Forward Transconductance | g_{FS} | $V_{DS}=5V$ | $I_D=30A$ | | 58 | | S |
| Forward On Voltage | V_{SD} | $V_{GS}=0V$ | $I_S=40A$ | | | 1.3 | V |
| Input Capacitance | C_{iss} | $V_{GS}=0V$ $V_{DS}=25V$ | $f=1MHz$ | | 3200 | | pF |
| Output Capacitance | C_{oss} | | | | 330 | | pF |
| Reverse Transfer Capacitance | C_{rss} | | | | 260 | | pF |
| Turn-On Delay Time | $t_{d(on)}$ | $V_{DD}=30V$ $R_L=25\Omega$ $R_G=25\Omega$ | $I_D=2A$ $V_{GS}=10V$ | | 20 | | ns |
| Turn-On Rise Time | t_r | | | | 17.8 | | ns |
| Turn-Off Delay Time | $t_{d(off)}$ | | | | 76.8 | | ns |
| Turn-Off Fall Time | t_f | | | | 15.7 | | ns |

■ TEST CIRCUITS AND WAVEFORMS

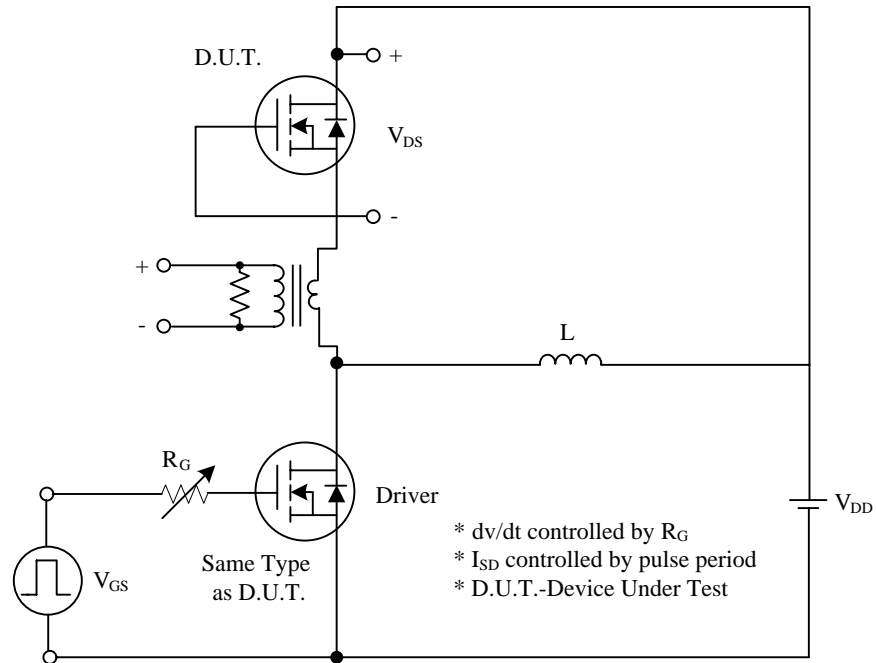


Fig. 1A Peak Diode Recovery dv/dt Test Circuit

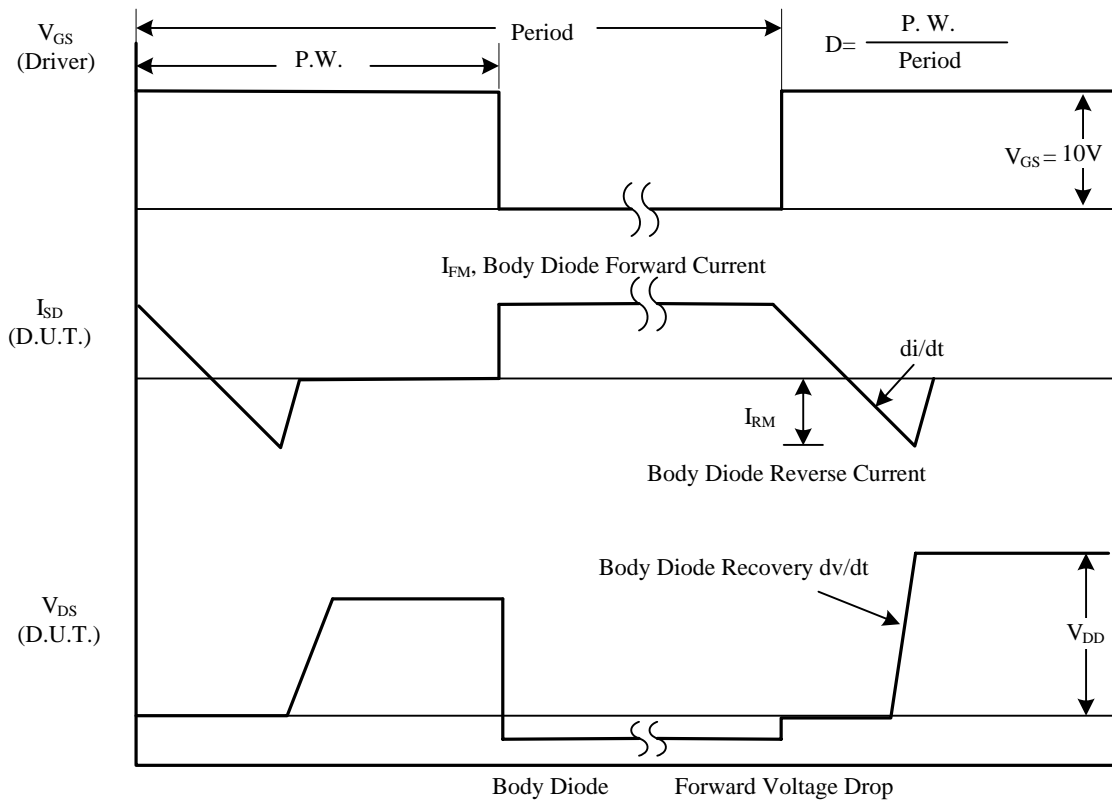


Fig. 1B Peak Diode Recovery dv/dt Waveforms

TEST CIRCUITS AND WAVEFORMS (Cont.)

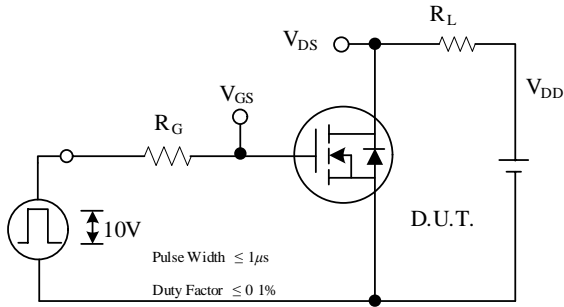


Fig. 2A Switching Test Circuit

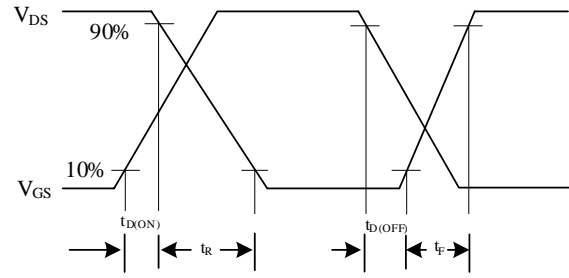


Fig. 2B Switching Waveforms

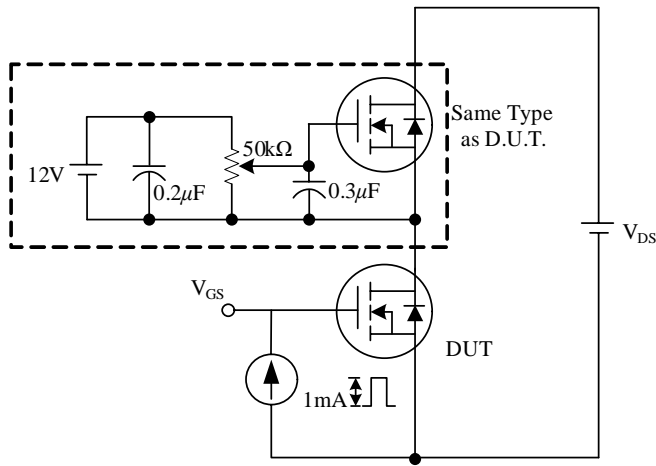


Fig. 3A Gate Charge Test Circuit

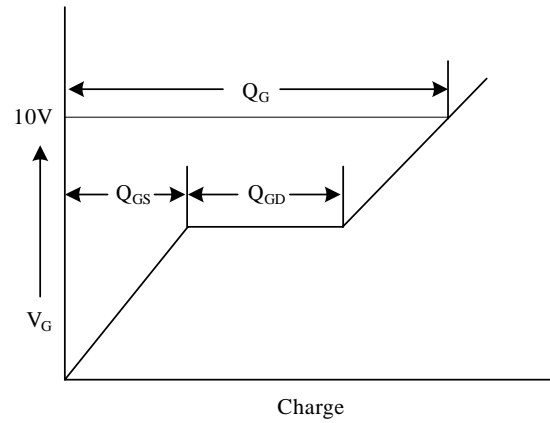


Fig. 3B Gate Charge Waveform

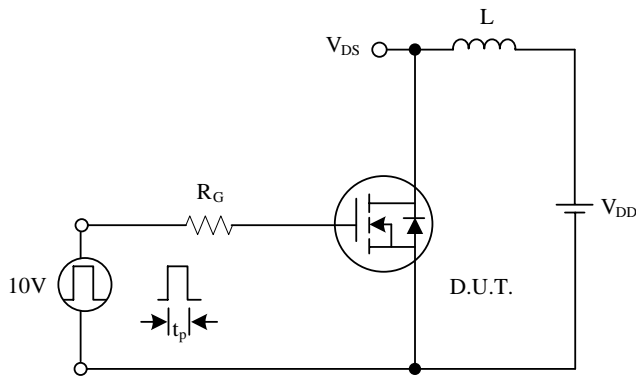


Fig. 4A Unclamped Inductive Switching Test Circuit

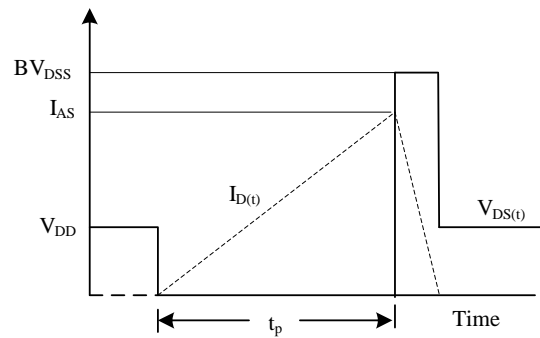


Fig. 4B Unclamped Inductive Switching Waveforms

TYPICAL CHARACTERISTICS

