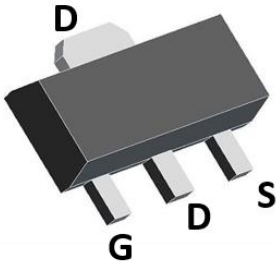
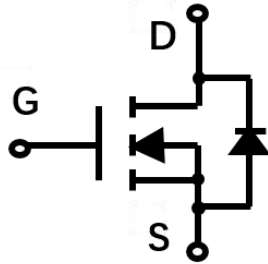
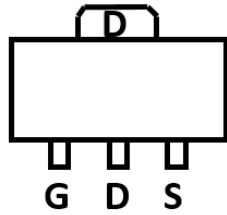


N-Channel Enhancement Mode Field Effect Transistor



SOT-89



Product Summary

- V_{DS} 100V
- I_D 3A
- $R_{DS(ON)}$ (at $V_{GS}=10V$) < 110 mohm
- $R_{DS(ON)}$ (at $V_{GS}=4.5V$) < 120 mohm

General Description

- Trench Power MV MOSFET technology
- Excellent package for heat dissipation
- High density cell design for low $R_{DS(ON)}$

Applications

- DC-DC Converters
- Power management functions

■ Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise noted)

| Parameter | Symbol | Limit | Unit |
|---|-----------------|------------------------|---------------------------|
| Drain-source Voltage | V_{DS} | 100 | V |
| Gate-source Voltage | V_{GS} | ± 20 | V |
| Drain Current | I_D | $T_A=25^\circ\text{C}$ | 3 |
| | | $T_A=70^\circ\text{C}$ | 2.4 |
| Pulsed Drain Current ^A | I_{DM} | 12 | A |
| Total Power Dissipation | P_D | $T_A=25^\circ\text{C}$ | 1.5 |
| | | $T_C=25^\circ\text{C}$ | 4.0 |
| Thermal Resistance Junction-to-Ambient ^B | $R_{\theta JA}$ | 83 | $^\circ\text{C}/\text{W}$ |
| Thermal Resistance Junction-to-Case | $R_{\theta JC}$ | 31 | $^\circ\text{C}/\text{W}$ |
| Junction and Storage Temperature Range | T_J, T_{STG} | -55~+150 | $^\circ\text{C}$ |

■ Ordering Information (Example)

| PREFERRED P/N | PACKING CODE | Marking | MINIMUM PACKAGE(pcs) | INNER BOX QUANTITY(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|---------------|--------------|---------|----------------------|-------------------------|----------------------------|---------------|
| YJH03N10A | F2 | 1003. | 1000 | 10000 | 40000 | 7" reel |



YJH03N10A

■ Electrical Characteristics (T_J=25°C unless otherwise noted)

| Parameter | Symbol | Conditions | Min | Typ | Max | Units |
|---------------------------------------|---------------------|--|-----|-----|------|-------|
| Static Parameter | | | | | | |
| Drain-Source Breakdown Voltage | BV _{DSS} | V _{GS} = 0V, I _D =250μA | 100 | | | V |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} =100V, V _{GS} =0V | | | 1 | μA |
| Gate-Body Leakage Current | I _{GSS} | V _{GS} = ±20V, V _{DS} =0V | | | ±100 | nA |
| Gate Threshold Voltage | V _{GS(th)} | V _{DS} = V _{GS} , I _D =250μA | 1 | 1.8 | 3.0 | V |
| Static Drain-Source On-Resistance | R _{DS(on)} | V _{GS} = 10V, I _D =3A | | 95 | 110 | mΩ |
| | | V _{GS} = 4.5V, I _D =2.4A | | 100 | 120 | |
| Diode Forward Voltage | V _{SD} | I _S =3A, V _{GS} =0V | | 0.8 | 1.2 | V |
| Maximum Body-Diode Continuous Current | I _S | | | | 3 | A |
| Dynamic Parameters | | | | | | |
| Input Capacitance | C _{iss} | V _{DS} =50V, V _{GS} =0V, f=1MHZ | | 785 | | pF |
| Output Capacitance | C _{oss} | | | 38 | | |
| Reverse Transfer Capacitance | C _{rss} | | | 30 | | |
| Switching Parameters | | | | | | |
| Total Gate Charge | Q _g | V _{GS} =10V, V _{DS} =50V, I _D =3A | | 16 | | nC |
| Gate-Source Charge | Q _{gs} | | | 2.5 | | |
| Gate-Drain Charge | Q _{gd} | | | 2.6 | | |
| Turn-on Delay Time | t _{D(on)} | V _{GS} =10V, V _{DD} =50V, R _L =6.4Ω R _{GEN} =3Ω | | 5 | | ns |
| Turn-on Rise Time | t _r | | | 40 | | |
| Turn-off Delay Time | t _{D(off)} | | | 20 | | |
| Turn-off fall Time | t _f | | | 7 | | |

A. Pulse Test: Pulse Width ≤ 300us, Duty cycle ≤ 2%.

B. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.



■ Typical Performance Characteristics

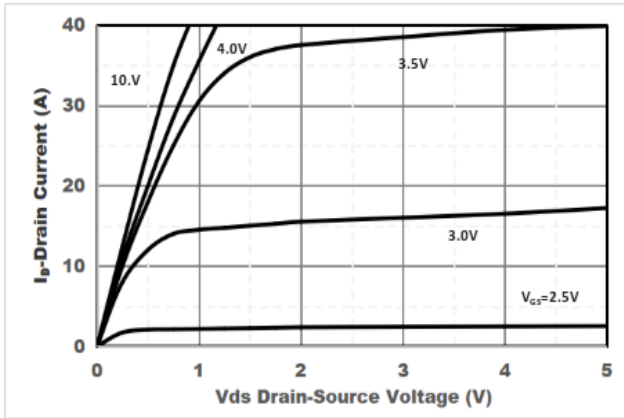


Figure1. Output Characteristics

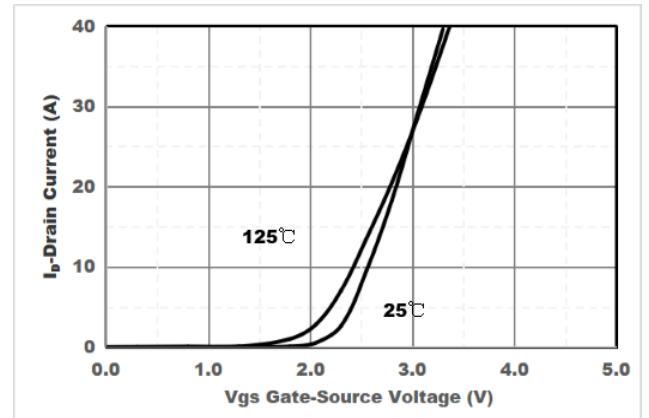


Figure2. Transfer Characteristics

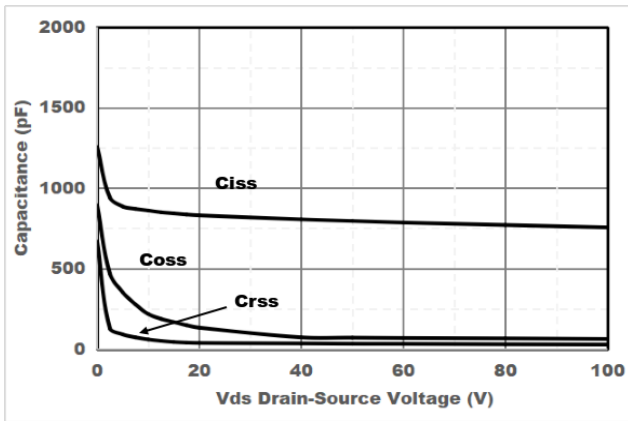


Figure3. Capacitance Characteristics

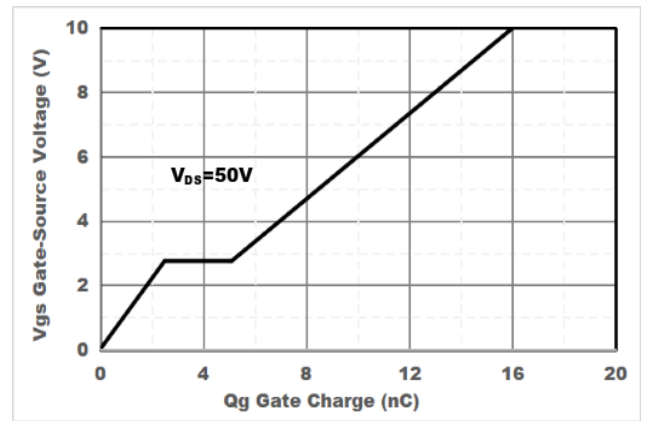


Figure4. Gate Charge

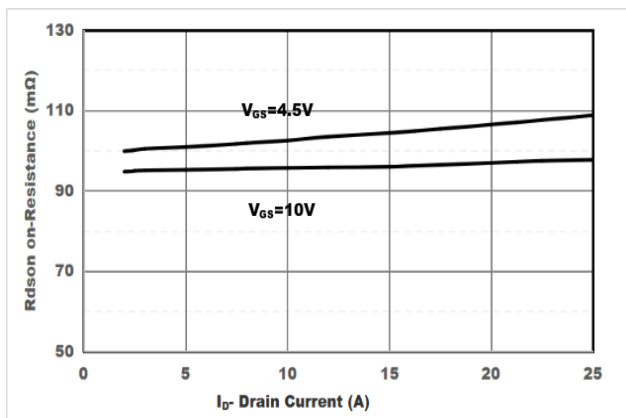


Figure5. Drain-Source on Resistance

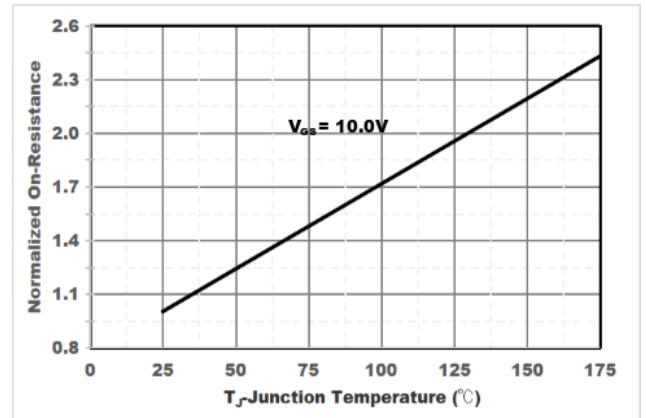


Figure6. Drain-Source on Resistance



YJH03N10A

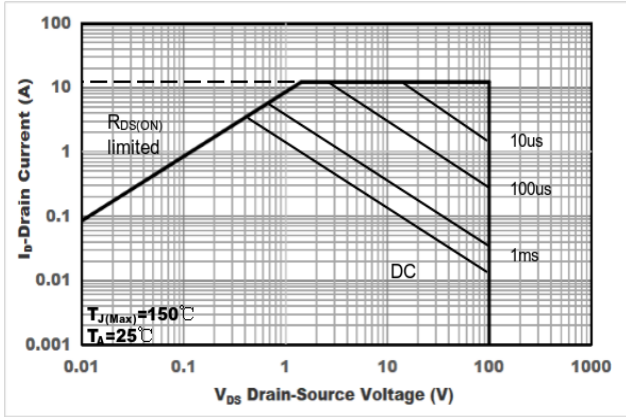


Figure7. Safe Operation Area

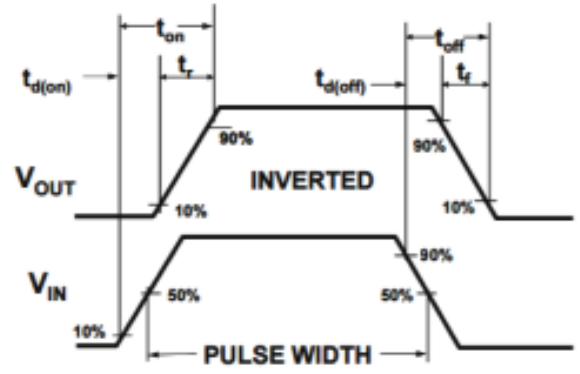
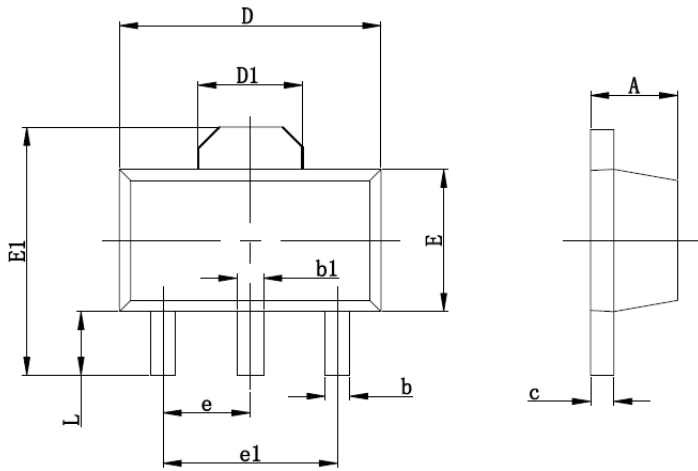


Figure8. Switching wave



■ SOT-89 Package information



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min | Max | Min | Max |
| A | 1.400 | 1.600 | 0.055 | 0.063 |
| b | 0.350 | 0.520 | 0.013 | 0.197 |
| b1 | 0.400 | 0.580 | 0.016 | 0.023 |
| c | 0.350 | 0.440 | 0.014 | 0.017 |
| D | 4.400 | 4.600 | 0.173 | 0.181 |
| D1 | 1.550 REF | | 0.061 REF | |
| E | 2.350 | 2.550 | 0.091 | 0.102 |
| E1 | 3.940 | 4.250 | 0.155 | 0.167 |
| e | 1.500 TYP | | 0.060TYP | |
| e1 | 3.000 TYP | | 0.118TYP | |
| L | 0.900 | 1.100 | 0.035 | 0.047 |



YJH03N10A

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