

EVVOSEMI[®]

THINK CHANGE DO



ESD



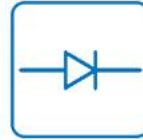
TVS



MOS



LDO



Diode



Sensor



DC-DC

Product Specification

| | | |
|--------------|-------------|---------|
| ▶ Domestic | Part Number | IRF7504 |
| ▶ Overseas | Part Number | IRF7504 |
| ▶ Equivalent | Part Number | IRF7504 |

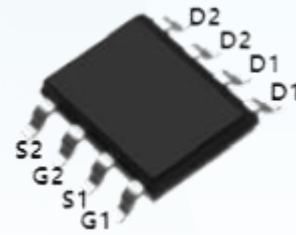
EV is the abbreviation of name EVVO

| V _{DSS} (V) | R _{DS (ON)} | I _{D(A)} |
|----------------------|----------------------------------|-------------------|
| -20 | 55mΩ(Typ)@V _{GS} =-4.5V | -5 |
| | 70mΩ(Typ)@V _{GS} =-2.5V | |

FEATURE:

- The IRF7504 is the high cell density trenched Dual P-ch MOSFETS, which provides excellent R_{DS(ON)} and efficiency for most of the small power switching and load switch applications.

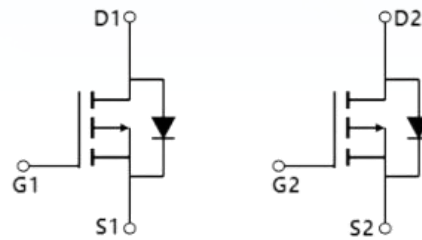
Pin Description



SOP-8

APPLICATIONS:

- Power management in half bridge and inverters
- DC-DC Converter
- Load Switch



Absolute Maximum Ratings

| Symbol | Parameter | Rating | Units |
|------------------|---|----------------------|-------|
| V _{DSS} | Drain-Source Voltage | -20 | V |
| V _{GSS} | Gate-Source Voltage | ±12 | V |
| I _D | Continuous Drain Current(V _{GS} = -4.5V) | T _c =25°C | -5 |
| | | T _c =70°C | -3 |
| T _J | Maximum Junction Temperature | 150 | °C |
| T _{STG} | Storage Temperature Range | -55 to 150 | °C |
| I _{DM} | Pulsed Drain Current | -20 | A |
| P _D | Maximum Power Dissipation | T _c =25°C | 2 |
| | | T _c =70°C | --- |
| E _{AS} | Avalanche Energy, Single Pulsed | --- | mJ |
| R _{θJC} | Thermal Resistance-Junction to Case | 36 | °C/W |
| R _{θJA} | Thermal Resistance-Junction to Ambient | 85 | °C/W |

Electrical Characteristics (T_A=25°C Unless Otherwise Noted)

| Symbol | Parameter | Conditions | Min. | Typ. | Max. | Unit |
|-------------------------------|---|--|------|------|------|------|
| Static Characteristics | | | | | | |
| BVDSS | Drain-Source Breakdown Voltage | VGS=0V, ID=250uA | -20 | --- | --- | V |
| VGS(th) | Gate threshold voltage | VDS=VGS, ID=250uA | -0.5 | -0.7 | -1 | V |
| RDS(on) | Drain-Source On-state Resistance | VGS=-4.5V, ID=-3A | --- | 55 | 70 | mΩ |
| | | VGS=-2.5V, ID=-2A | --- | 70 | 100 | mΩ |
| IGSS | Gate-source leakage current | VGS=±12V, VDS=0V | --- | --- | ±100 | nA |
| IDSS | Zero gate voltage drain current | VDS=-20V, VGS=0V, T _J =25°C | --- | --- | -1 | μA |
| | | T _J =55°C | --- | --- | --- | |
| Dynamic Characteristic | | | | | | |
| Ciss | Input Capacitance | VGS=0V, VDS=-10V, Frequency=1.0MHz | --- | 503 | --- | pF |
| Coss | Output Capacitance | | --- | 67 | --- | |
| Crss | Reverse Transfer Capacitance | | --- | 58 | --- | |
| QG | Gate Total Charge | VDS=-10V, VGS=-4.5V, IDS=-2A | --- | 4.1 | --- | nC |
| Qgs | Gate-Source charge | | --- | 0.8 | --- | |
| Qgd | Gate-Drain charge | | --- | 1.1 | --- | |
| td(on) | Turn-on delay time | VDD=-10V, VGS=-4.5V, RG=1Ω, ID=-3A | --- | 11 | --- | ns |
| tr | Turn-on Rise Time | | --- | 52 | --- | |
| td(off) | Turn-off Delay Time | | --- | 16 | --- | |
| tf | Turn-off Fall Time | | --- | 10 | --- | |
| RG | Gate Resistance | VGS=0V, VDS=0V, F=1MHz | --- | --- | --- | Ω |
| Diode Characteristics | | | | | | |
| VSD | Diode Forward Voltage | VGS=0V, IS=1A, T _J =25°C | --- | --- | 1.2 | V |
| Is | Maximum Continuous Drain to Source Diode Forward Curren | | --- | -- | -3 | A |
| ISM | Maximum Pulsed Drain to Source Diode Forward Curren | | --- | --- | -12 | A |
| trr | Reverse Recovery Time | ISD=4.1A, dISD/dt=-100A/μs | --- | -- | --- | ns |
| Qrr | Reverse Recovery Charge | | --- | -- | --- | nC |

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

Figure 1: Output Characteristics

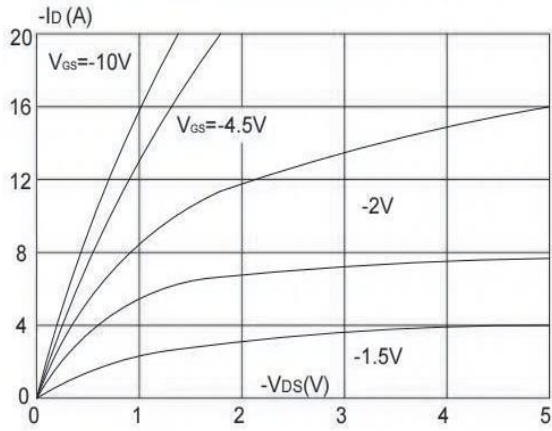


Figure 2: Typical Transfer Characteristics

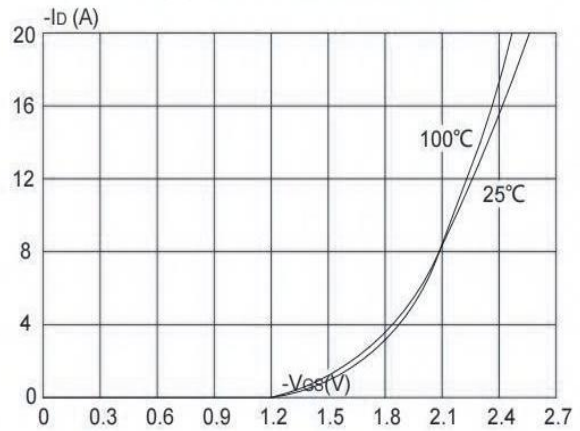


Figure 3: On-resistance vs. Drain Current

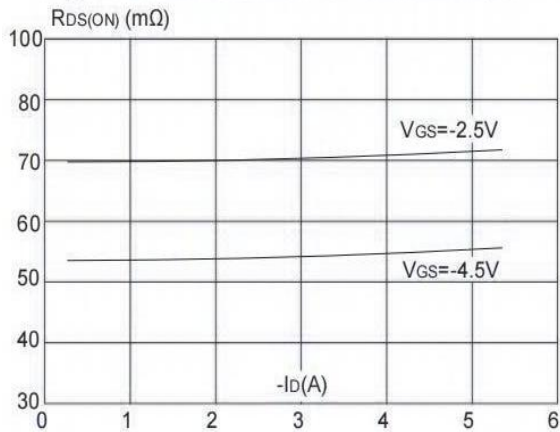


Figure 4: Body Diode Characteristics

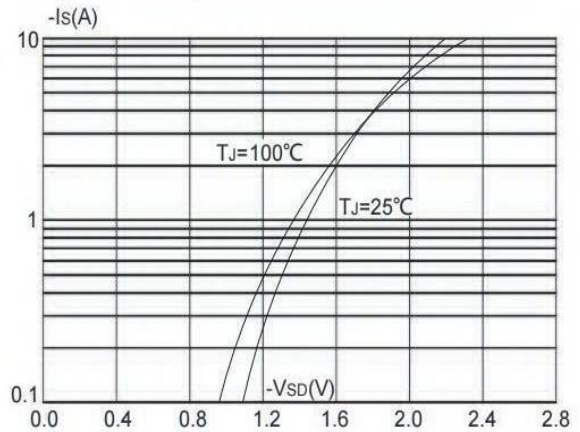


Figure 5: Gate Charge Characteristics

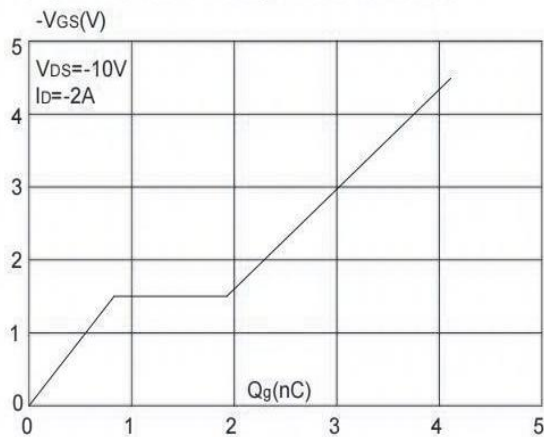
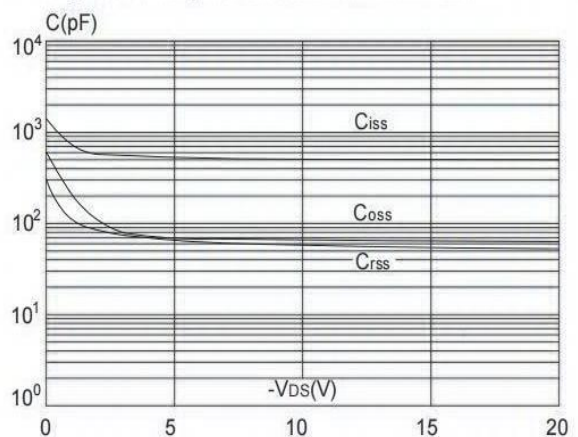
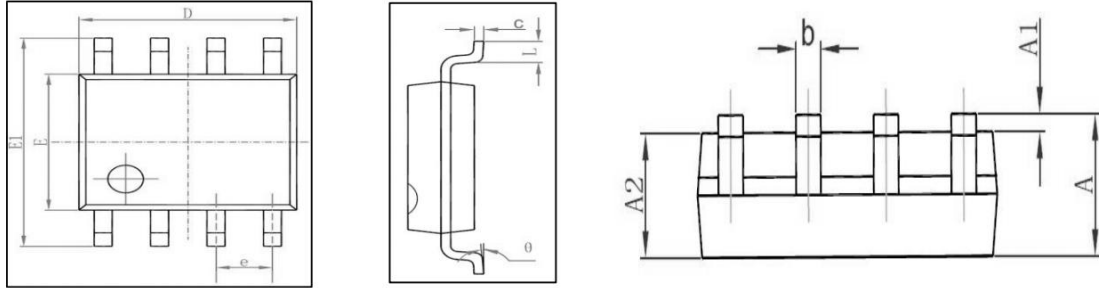


Figure 6: Capacitance Characteristics





| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min | Max | Min | Max |
| A | 1.350 | 1.750 | 0.053 | 0.069 |
| A1 | 0.100 | 0.250 | 0.004 | 0.010 |
| A2 | 1.350 | 1.550 | 0.053 | 0.061 |
| b | 0.330 | 0.510 | 0.013 | 0.020 |
| c | 0.170 | 0.250 | 0.006 | 0.010 |
| D | 4.700 | 5.100 | 0.185 | 0.200 |
| E | 3.800 | 4.000 | 0.150 | 0.157 |
| E1 | 5.800 | 6.200 | 0.228 | 0.244 |
| e | 1.270 (BSC) | | 0.050 (BSC) | |
| L | 0.400 | 1.270 | 0.016 | 0.050 |
| θ | 0° | 8° | 0° | 8° |

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