

Features

- $V_{ds} = 60V, I_D = 53A$
- $R_{DS(ON)} \leq 12m\Omega @ V_{GS} = 10V$
- $R_{DS(ON)} \leq 17m\Omega @ V_{GS} = 4.5V$

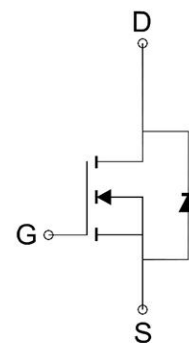
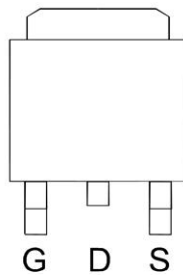
Application

- Load Switch
- PWM Application
- Power management

Package and Pin Configuration

(TO-252-3L)

Top View



N-Channel MOSFET

Marking:



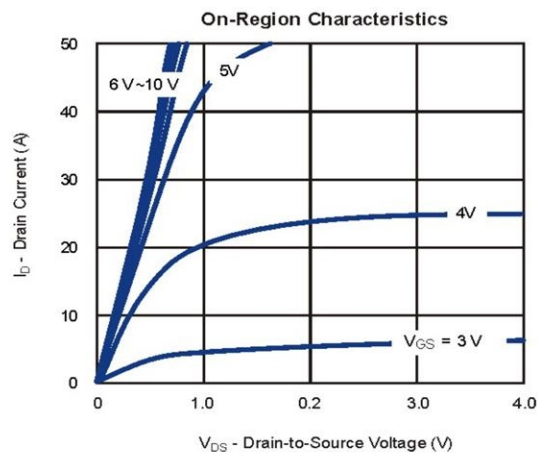
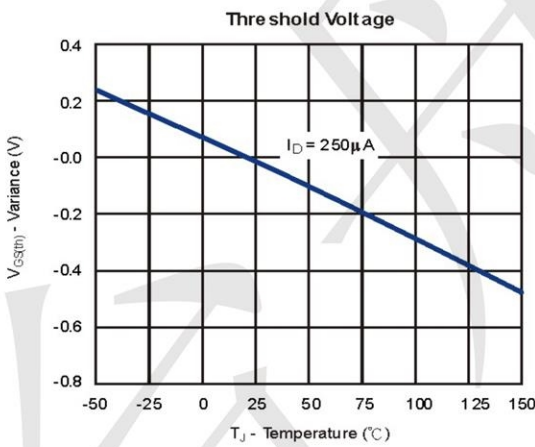
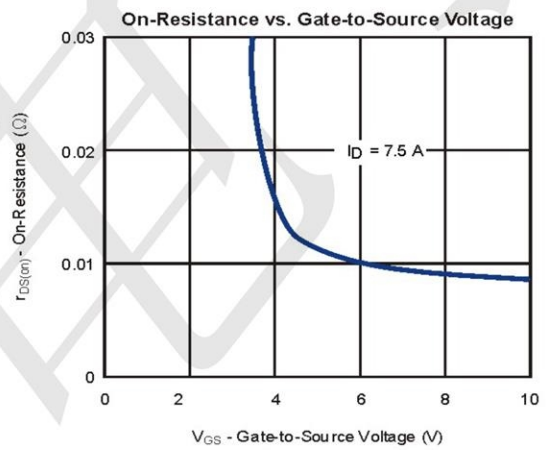
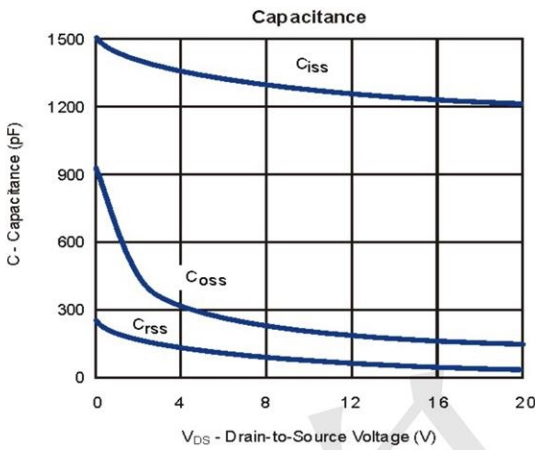
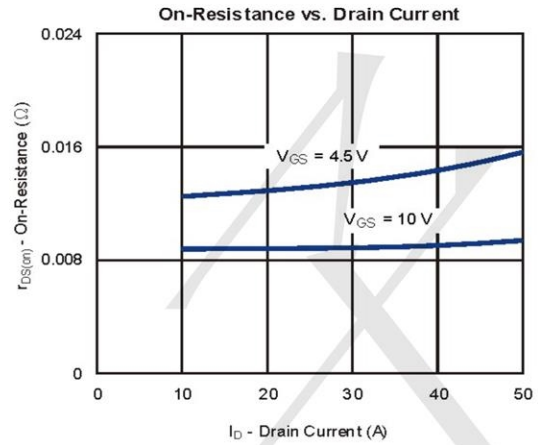
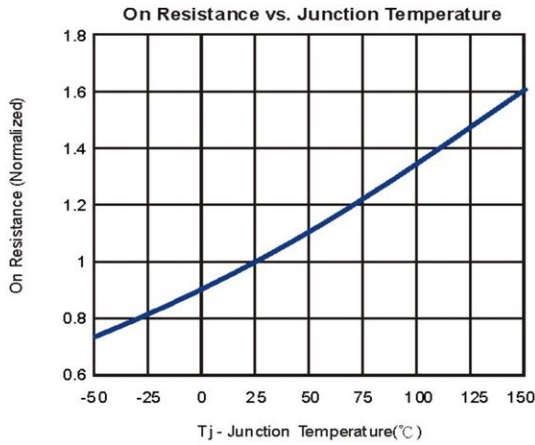
Absolute Maximum Ratings ($T_A = 25^\circ C$ Unless Otherwise Noted)

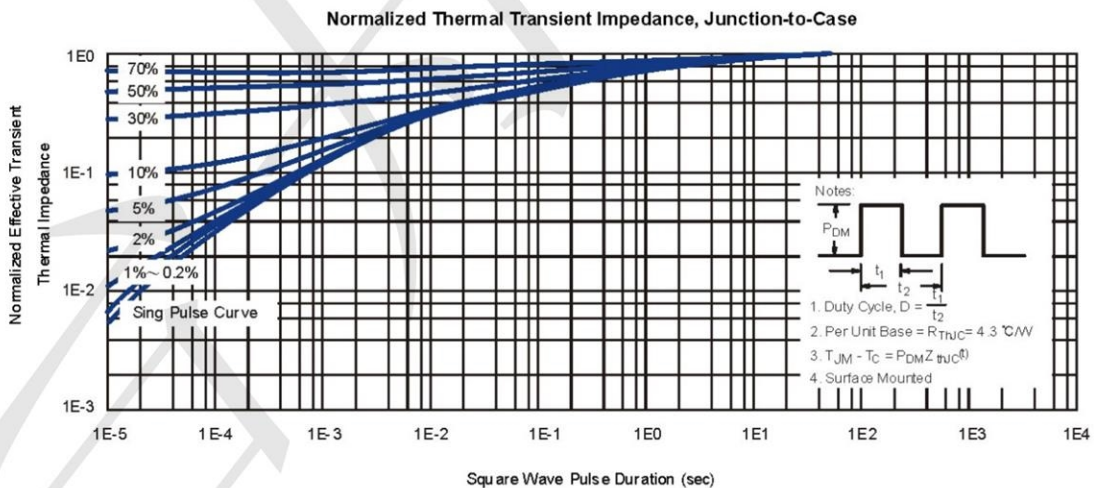
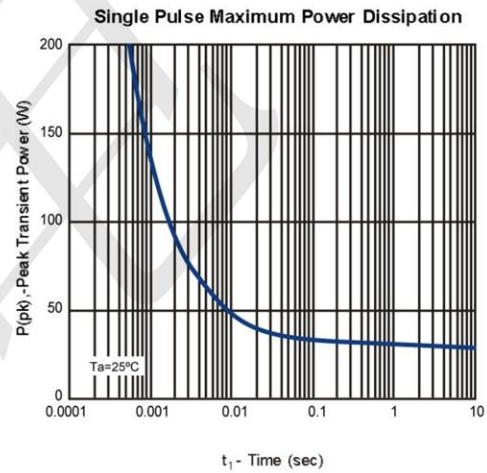
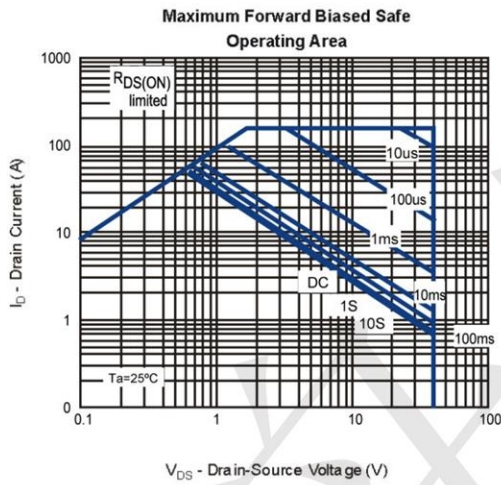
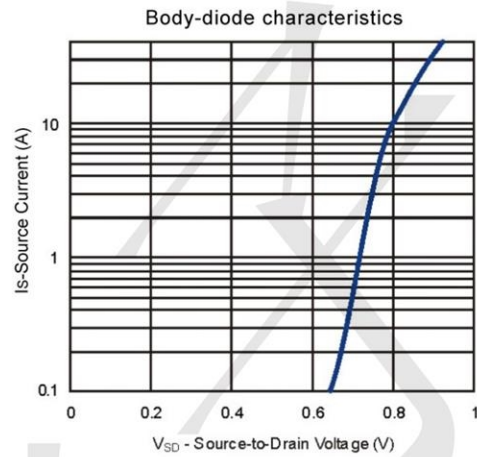
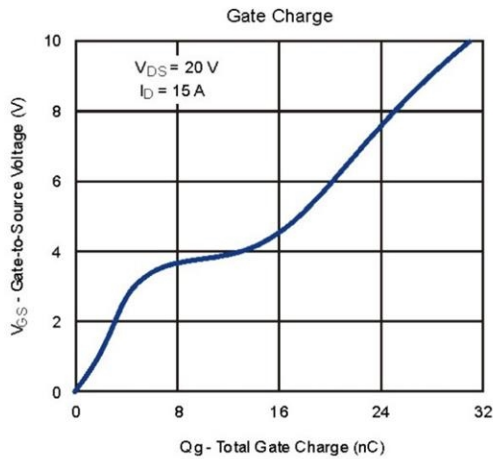
| Parameter | Symbol | Steady | Unit |
|-------------------------------------------------------------------------|-----------------|--------------------|--------------|
| Drain-Source Voltage | V_{DSS} | 40 | V |
| Gate-Source Voltage | V_{GSS} | ± 20 | V |
| Continuous Drain Current ($T_J = 150^\circ C$, limited by package) | I_D | $T_C = 25^\circ C$ | 53 |
| | | $T_C = 70^\circ C$ | 31 |
| Pulsed Drain Current | I_{DM} | 156 | A |
| Maximum Power Dissipation (Note A) | P_D | $T_C = 25^\circ C$ | 30 |
| | | $T_C = 70^\circ C$ | 18.5 |
| Operating Junction Temperature | T_J | -55 to 150 | $^\circ C$ |
| Thermal Resistance-Junction to Ambient(Note A) | $R_{\theta JA}$ | 42 | $^\circ C/W$ |
| Thermal Resistance-Junction to Case(Note A) | $R_{\theta JC}$ | 4.3 | $^\circ C/W$ |

Electrical Characteristics (TA=25°C Unless Otherwise Specified)

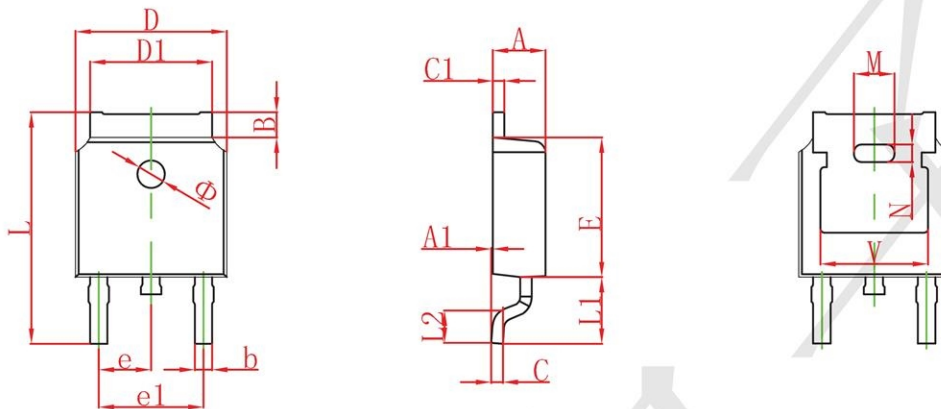
| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|----------------------|-----------------------------------------------|----------------------------------------------------------------------------------------|-----|------|------|------|
| STATIC | | | | | | |
| V _{(BR)DSS} | Drain-Source Breakdown Voltage | V _{GS} =0V, I _D =250 μA | 40 | | | V |
| V _{GS(th)} | Gate Threshold Voltage | V _{DS} =V _{GS} , I _D =250 μA | 1 | 1.5 | 3 | V |
| I _{GSS} | Gate Leakage Current | V _{DS} =0V, V _{GS} =±20V | | | ±100 | nA |
| I _{DSS} | Zero Gate Voltage Drain Current | V _{DS} =40V, V _{GS} =0V | | | 1 | μA |
| R _{DS(ON)} | Drain-Source On-State Resistance ^a | V _{GS} =10V, I _D = 15A | | 8.8 | 12 | mΩ |
| | | V _{GS} =4.5V, I _D = 13A | | 12 | 17 | |
| V _{SD} | Diode Forward Voltage | I _S =15A, V _{GS} =0V | | 0.8 | 1.2 | V |
| DYNAMIC | | | | | | |
| Q _g (TOT) | Total Gate Charge, V _{GS} =10V | V _{DS} =20V, I _D =15A | | 31 | 36 | nC |
| Q _g | Total Gate Charge, V _{GS} =4.5V | | | 16 | 18 | |
| Q _{gs} | Gate-Source Charge | | | 6.5 | | |
| Q _{gd} | Gate-Drain Charge | | | 8.3 | | |
| R _g | Gate Resistance | V _{GS} =V _{DS} =0V, f=1MHz | | 1.6 | | Ω |
| C _{iss} | Input capacitance | V _{DS} =20V, V _{GS} =0V, f=1MHz | | 1240 | 1500 | pF |
| C _{oss} | Output Capacitance | | | 170 | | |
| C _{rss} | Reverse Transfer Capacitance | | | 60 | | |
| t _{d(on)} | Turn-On Delay Time | V _{DD} =20V, I _D =1A V _{GS} =10V, R _{GEN} =6Ω | | 16 | 20 | ns |
| t _r | Turn-On Rise Time | | | 13 | 17 | |
| t _{d(off)} | Turn-Off Delay Time | | | 60 | 75 | |
| t _f | Turn-On Fall Time | | | 7 | 10 | |

Typical Electrical and Thermal Characteristic Curves





TO252 Package Information



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|--------|----------------------|-------|
| | Min. | Max. | Min. | Max. |
| A | 2.200 | 2.380 | 0.087 | 0.094 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| B | 0.800 | 1.400 | 0.031 | 0.055 |
| b | 0.710 | 0.810 | 0.028 | 0.032 |
| c | 0.460 | 0.560 | 0.018 | 0.022 |
| c1 | 0.460 | 0.560 | 0.018 | 0.022 |
| D | 6.500 | 6.700 | 0.256 | 0.264 |
| D1 | 5.130 | 5.460 | 0.202 | 0.215 |
| E | 6.000 | 6.200 | 0.236 | 0.244 |
| e | 2.286 TYP. | | 0.090 TYP. | |
| e1 | 4.327 | 4.727 | 0.170 | 0.186 |
| M | 1.778 REF. | | 0.070 REF. | |
| N | 0.762 REF. | | 0.018 REF. | |
| L | 9.800 | 10.400 | 0.386 | 0.409 |
| L1 | 2.9 REF. | | 0.114 REF. | |
| L2 | 1.400 | 1.700 | 0.055 | 0.067 |
| V | 4.830 REF. | | 0.190 REF. | |
| Φ | 1.100 | 1.300 | 0.043 | 0.051 |

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