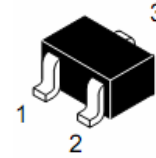
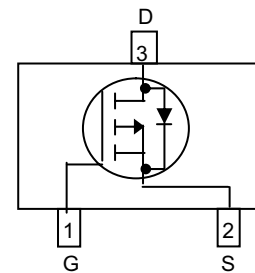


WPM3005
Single P-Channel, -30V, -4.1A, Power MOSFET
[Http://www.sh-willsemi.com](http://www.sh-willsemi.com)

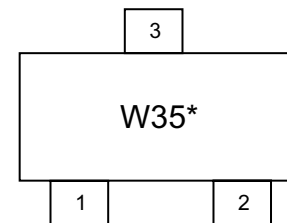
| V_{DS} (V) | $R_{ds(on)}$ (Ω) |
|--------------|---------------------------|
| -30 | 0.057@ $V_{GS} = -10.0V$ |
| | 0.057@ $V_{GS} = -10.0V$ |
| | 0.083@ $V_{GS} = -4.5V$ |
| | 0.083@ $V_{GS} = -4.5V$ |


SOT-23-3L
Descriptions

The WPM3005 is P-Channel enhancement MOS Field Effect Transistor. Uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. This device is suitable for use in DC-DC conversion, power switch and charging circuit. Standard Product WPM3005 is Pb-free and Halogen-free.


Pin configuration (Top view)
Features

- Trench Technology
- Supper high density cell design
- Excellent ON resistance for higher DC current
- Extremely Low Threshold Voltage
- Small package SOT-23-3L



W35= Device Code
* = Month (A~Z)

Marking
Applications

- Driver for Relay, Solenoid, Motor, LED etc.
- DC-DC converter circuit
- Power Switch
- Load Switch
- Charging

Order information

| Device | Package | Shipping |
|--------------|-----------|----------------|
| WPM3005-3/TR | SOT-23-3L | 3000/Reel&Tape |

Absolute Maximum ratings

| Parameter | | Symbol | 10 S | Steady State | Unit |
|--|------------------------|-----------|------------|--------------|------|
| Drain-Source Voltage | | V_{DS} | -30 | | V |
| Gate-Source Voltage | | V_{GS} | ±20 | | |
| Continuous Drain Current ^a | $T_A=25^\circ\text{C}$ | I_D | -4.1 | -3.4 | A |
| | $T_A=70^\circ\text{C}$ | | -3.3 | -2.7 | |
| Maximum Power Dissipation ^a | $T_A=25^\circ\text{C}$ | P_D | 1.4 | 1.0 | W |
| | $T_A=70^\circ\text{C}$ | | 0.9 | 0.6 | |
| Continuous Drain Current ^b | $T_A=25^\circ\text{C}$ | I_D | -3.8 | -3.2 | A |
| | $T_A=70^\circ\text{C}$ | | -3.0 | -2.5 | |
| Maximum Power Dissipation ^b | $T_A=25^\circ\text{C}$ | P_D | 1.2 | 0.8 | W |
| | $T_A=70^\circ\text{C}$ | | 0.8 | 0.5 | |
| Pulsed Drain Current ^c | | I_{DM} | -25 | | A |
| Operating Junction Temperature | | T_J | 150 | | °C |
| Lead Temperature | | T_L | 260 | | °C |
| Storage Temperature Range | | T_{stg} | -55 to 150 | | °C |

Thermal resistance ratings

| Parameter | | Symbol | Typical | Maximum | Unit |
|---|-----------------------|-----------------|---------|---------|------|
| Junction-to-Ambient Thermal Resistance ^a | $t \leq 10 \text{ s}$ | $R_{\theta JA}$ | 65 | 85 | °C/W |
| | Steady State | | 90 | 125 | |
| Junction-to-Ambient Thermal Resistance ^b | $t \leq 10 \text{ s}$ | $R_{\theta JA}$ | 85 | 100 | |
| | Steady State | | 115 | 140 | |
| Junction-to-Case Thermal Resistance | | $R_{\theta JC}$ | 40 | 60 | |

a Surface mounted on FR4 Board using 1 square inch pad size, 1oz copper

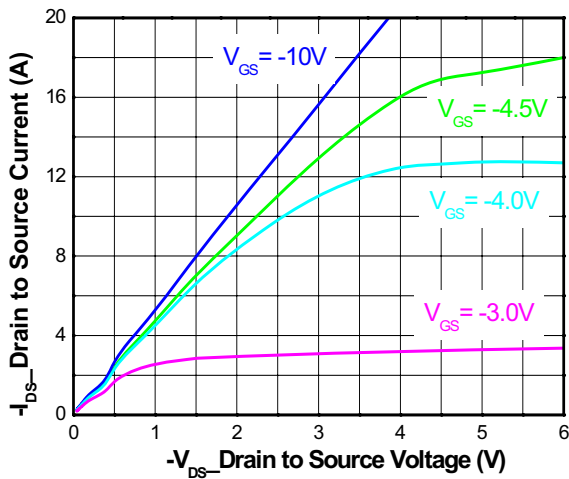
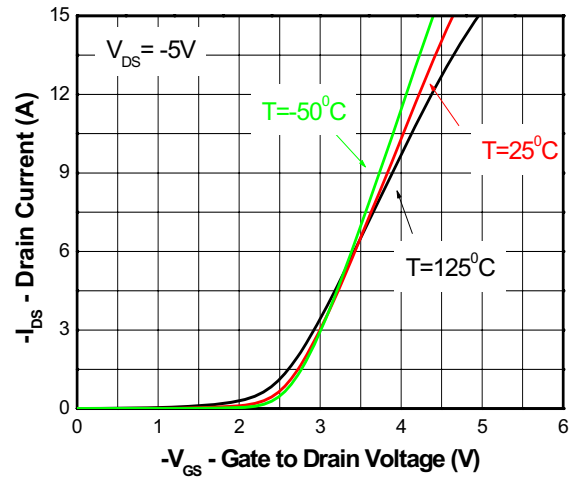
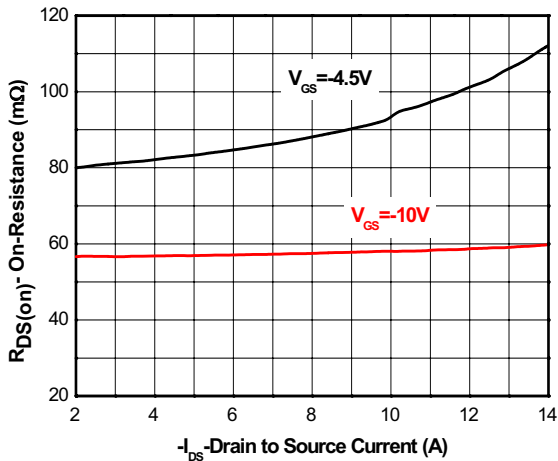
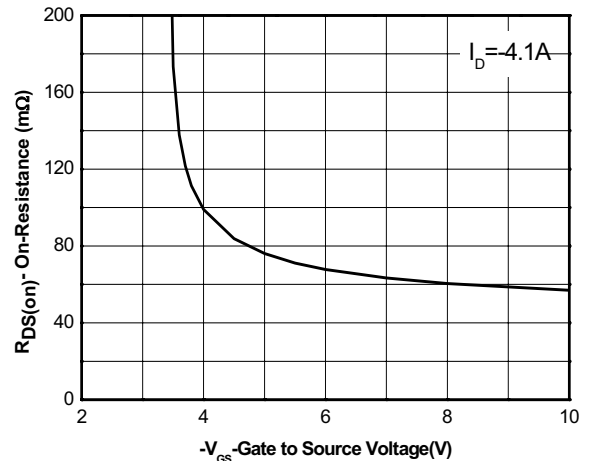
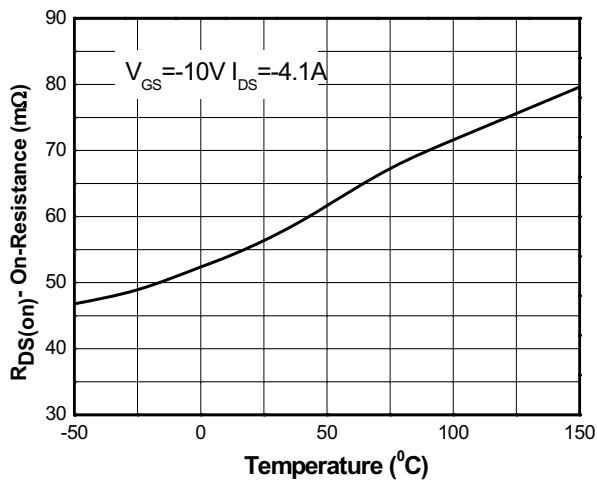
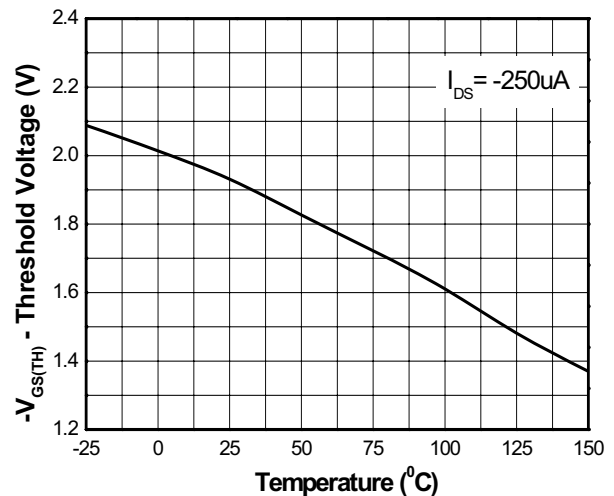
b Surface mounted on FR4 board using minimum pad size, 1oz copper

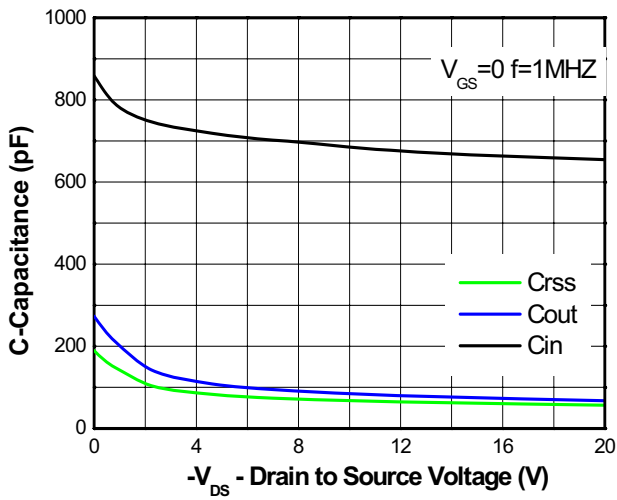
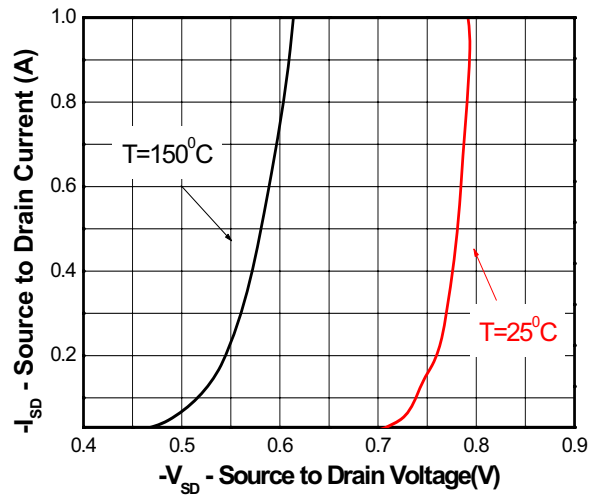
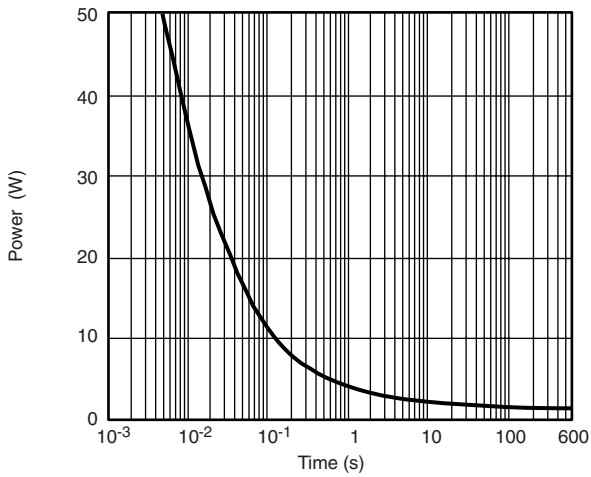
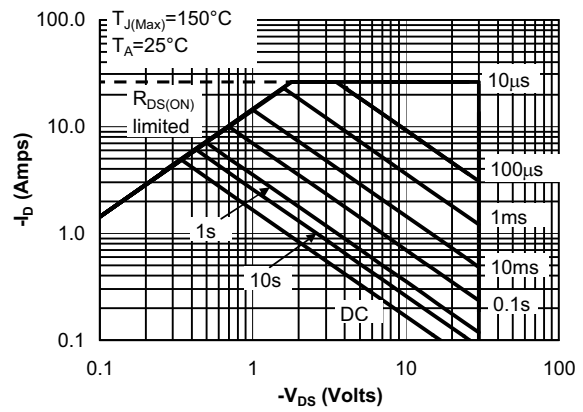
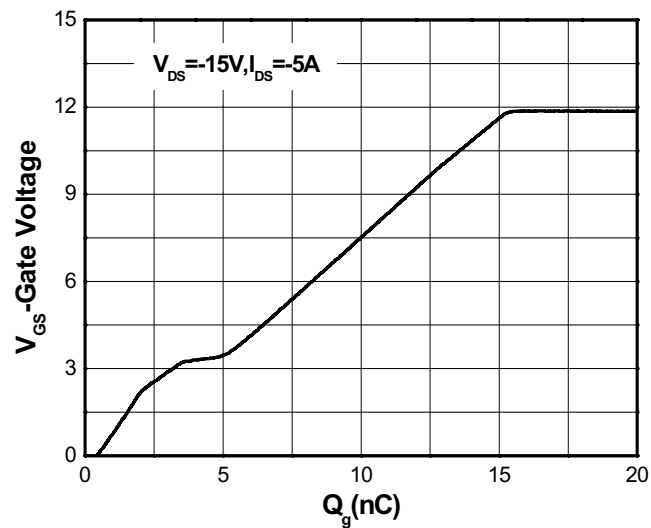
c Repetitive rating, pulse width limited by junction temperature, $t_p=10\mu\text{s}$, Duty Cycle=1%

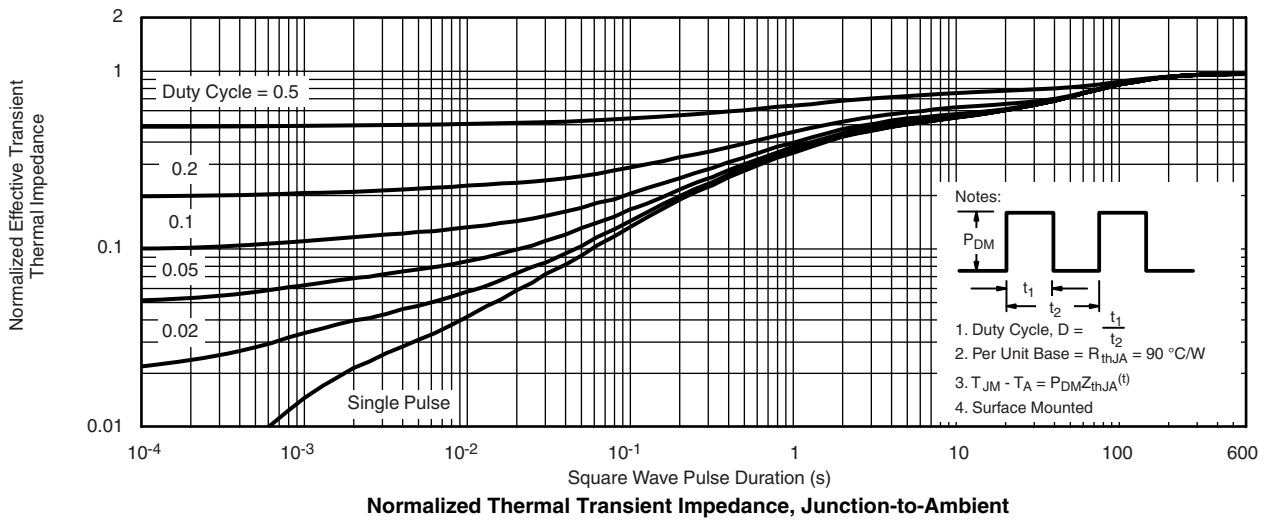
d Repetitive rating, pulse width limited by junction temperature $T_J=150^\circ\text{C}$.

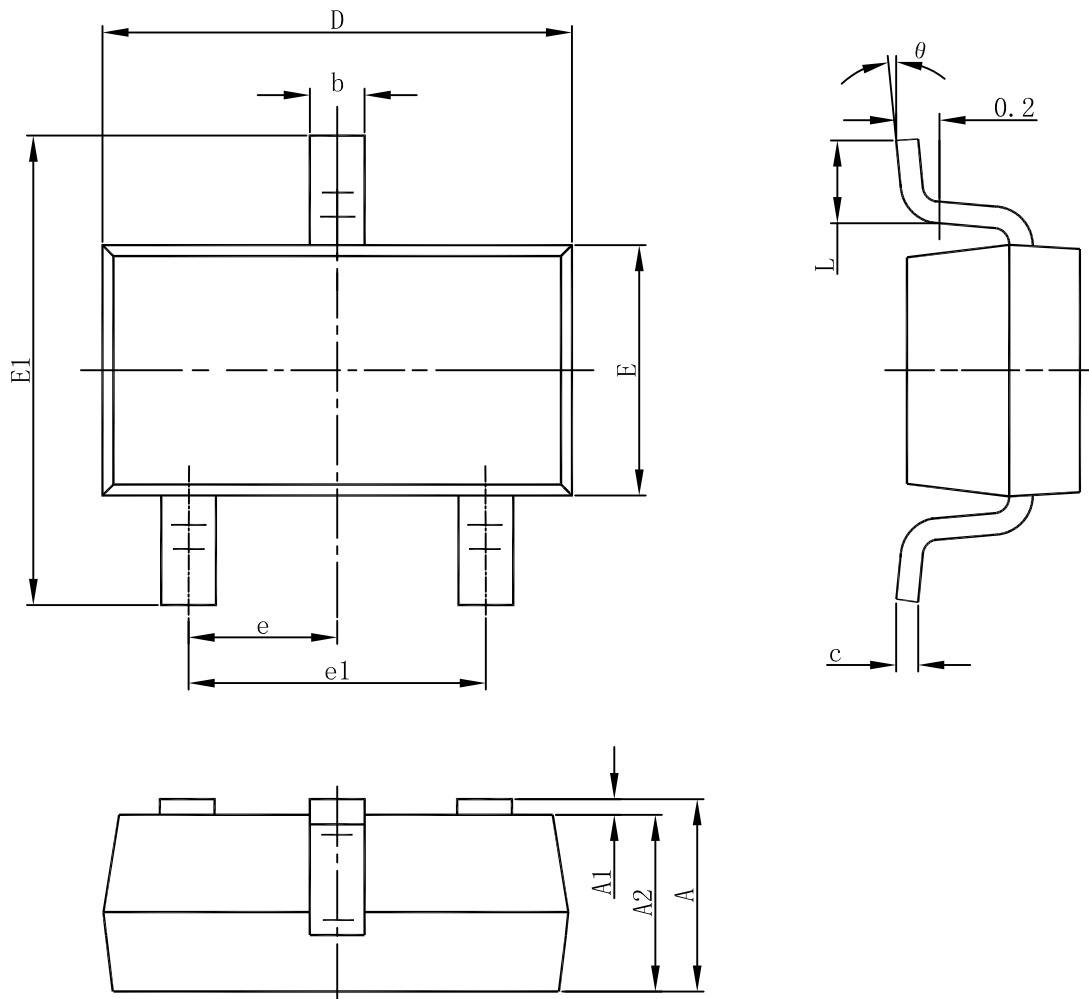
Electronics Characteristics (Ta=25°C, unless otherwise noted)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|--|--------------|---|-------|-------|-----------|---------------|
| OFF CHARACTERISTICS | | | | | | |
| Drain-to-Source Breakdown Voltage | BV_{DSS} | $V_{GS} = 0\text{ V}, I_D = -250\mu\text{A}$ | -30 | | | V |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS} = -24\text{ V}, V_{GS} = 0\text{ V}$ | | | -1 | μA |
| Gate-to-source Leakage Current | I_{GSS} | $V_{DS} = 0\text{ V}, V_{GS} = \pm 20\text{ V}$ | | | ± 100 | nA |
| ON CHARACTERISTICS | | | | | | |
| Gate Threshold Voltage | $V_{GS(TH)}$ | $V_{GS} = V_{DS}, I_D = -250\mu\text{A}$ | -1.5 | -2.0 | -2.5 | V |
| Drain-to-source On-resistance | $R_{DS(on)}$ | $V_{GS} = -10\text{ V}, I_D = -4.1\text{ A}$ | | 57 | 60 | m Ω |
| | | $V_{GS} = -10\text{ V}, I_D = -3.0\text{ A}$ | | 57 | 60 | |
| | | $V_{GS} = -4.5\text{ V}, I_D = -4.0\text{ A}$ | | 83 | 90 | |
| | | $V_{GS} = -4.5\text{ V}, I_D = -3.0\text{ A}$ | | 83 | 90 | |
| Forward Transconductance | g_{FS} | $V_{DS} = -5\text{ V}, I_D = -4.1\text{ A}$ | | 7.6 | | S |
| CHARGES, CAPACITANCES AND GATE RESISTANCE | | | | | | |
| Input Capacitance | C_{ISS} | $V_{GS} = 0\text{ V}, f = 1.0\text{ MHz}, V_{DS} = -15\text{ V}$ | | 670 | | pF |
| Output Capacitance | C_{OSS} | | | 75 | | |
| Reverse Transfer Capacitance | C_{RSS} | | | 62 | | |
| Total Gate Charge | $Q_{G(TOT)}$ | $V_{GS} = -10\text{ V}, V_{DS} = -15\text{ V}, I_D = -4.1\text{ A}$ | | 14.0 | | nC |
| Threshold Gate Charge | $Q_{G(TH)}$ | | | 1.31 | | |
| Gate-to-Source Charge | Q_{GS} | | | 2.0 | | |
| Gate-to-Drain Charge | Q_{GD} | | | 2.45 | | |
| SWITCHING CHARACTERISTICS | | | | | | |
| Turn-On Delay Time | $t_d(ON)$ | $V_{GS} = -10\text{ V}, V_{DS} = -15\text{ V}, R_L = 5.0\ \Omega, R_G = 15\ \Omega$ | | 6.8 | | ns |
| Rise Time | t_r | | | 3.2 | | |
| Turn-Off Delay Time | $t_d(OFF)$ | | | 25.2 | | |
| Fall Time | t_f | | | 4.4 | | |
| BODY DIODE CHARACTERISTICS | | | | | | |
| Forward Voltage | V_{SD} | $V_{GS} = 0\text{ V}, I_S = -1.0\text{ A}$ | -0.55 | -0.78 | -1.50 | V |

Typical Characteristics (Ta=25°C, unless otherwise noted)

Output characteristics

Transfer characteristics

On-Resistance vs. Drain current

On-Resistance vs. Gate-to-Source voltage

On-Resistance vs. Junction temperature

Threshold voltage vs. Temperature


Capacitance

Body diode forward voltage

Single pulse power

Safe operating power

Gate Charge Characteristics



Package outline dimensions
SOT-23-3L


| Symbol | Dimensions in millimeter | | |
|--------|--------------------------|-------|-------|
| | Min. | Typ. | Max. |
| A | 1.050 | 1.150 | 1.250 |
| A1 | 0.000 | 0.050 | 0.100 |
| A2 | 1.050 | 1.100 | 1.150 |
| b | 0.300 | 0.400 | 0.500 |
| c | 0.100 | 0.150 | 0.200 |
| D | 2.820 | 2.920 | 3.020 |
| E | 1.500 | 1.600 | 1.700 |
| E1 | 2.650 | 2.800 | 2.950 |
| e | 0.950(BSC) | | |
| e1 | 1.800 | 1.900 | 2.000 |
| L | 0.300 | 0.450 | 0.600 |
| θ | 0° | | 8° |

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [MOSFET](#) category:

Click to view products by [Will Semiconductor](#) manufacturer:

Other Similar products are found below :

[IRFD120](#) [JANTX2N5237](#) [2SK2267\(Q\)](#) [BUK455-60A/B](#) [TK100A10N1,S4X\(S](#) [MIC4420CM-TR](#) [VN1206L](#) [NDP4060](#) [SI4482DY](#)
[IRS2092STRPBF-EL](#) [IPS70R2K0CEAKMA1](#) [TK31J60W5,S1VQ\(O](#) [TK31J60W,S1VQ\(O](#) [TK16J60W,S1VQ\(O](#) [2SK2614\(TE16L1,Q\)](#)
[DMN1017UCP3-7](#) [EFC2J004NUZTDG](#) [P85W28HP2F-7071](#) [DMN1053UCP4-7](#) [NTE2384](#) [DMC2700UDMQ-7](#) [DMN2080UCB4-7](#)
[DMN61D9UWQ-13](#) [US6M2GTR](#) [DMN31D5UDJ-7](#) [DMP22D4UFO-7B](#) [IPS60R3K4CEAKMA1](#) [DMN1006UCA6-7](#) [DMN16M9UCA6-7](#)
[STF5N65M6](#) [IRF40H233XTMA1](#) [STU5N65M6](#) [DMN6022SSD-13](#) [DMN13M9UCA6-7](#) [DMTH10H4M6SPS-13](#) [IPS60R360PFD7SAKMA1](#)
[DMN2990UFB-7B](#) [SSM3K35CT,L3F](#) [IPLK60R1K0PFD7ATMA1](#) [2N7002W-G](#) [MCAC30N06Y-TP](#) [IPWS65R035CFD7AXKSA1](#)
[MCQ7328-TP](#) [SSM3J143TU,LXHF](#) [DMN12M3UCA6-7](#) [PJMF280N65E1_T0_00201](#) [PJMF380N65E1_T0_00201](#)
[PJMF280N60E1_T0_00201](#) [PJMF600N65E1_T0_00201](#) [PJMF900N65E1_T0_00201](#)