

GSM9434WS

20V P-Channel Enhancement Mode MOSFET

Product Description

GSM9434WS, P-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent $R_{DS(ON)}$, low gate charge.

These devices are particularly suited for low voltage power management, and low in-line power loss are needed in commercial industrial surface mount applications.

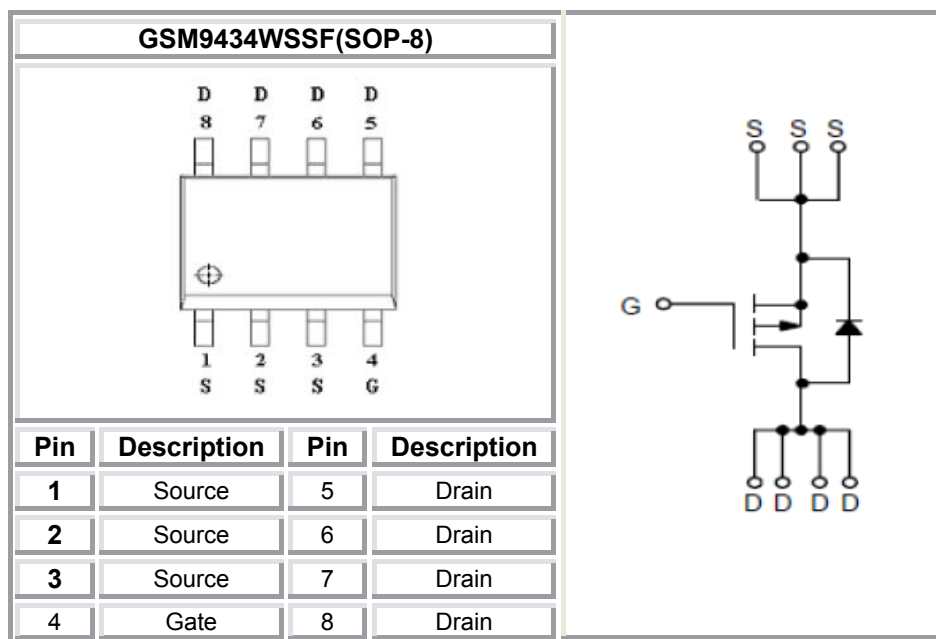
Features

- $-20V/-6.5A, R_{DS(ON)} = 42m\Omega @ V_{GS} = -4.5V$
- $-20V/-4.5A, R_{DS(ON)} = 58m\Omega @ V_{GS} = -2.5V$
- $-20V/-2.5A, R_{DS(ON)} = 72m\Omega @ V_{GS} = -1.8V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- SOP-8P package design

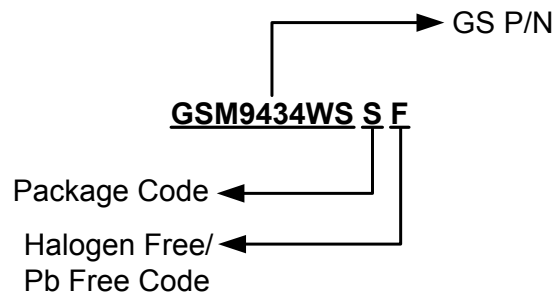
Applications

- LED Display
- Load Switch
- CCFL Inverter
- Power Management in Notebook Computer,

Packages & Pin Assignments

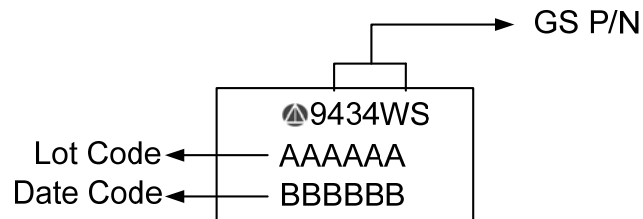


Ordering Information



| Part Number | Package | Quantity Reel |
|-------------|---------|---------------|
| GSM9434WSSF | SOP-8 | 2500 PCS |

Marking Information



Absolute Maximum Ratings

(T_A=25°C unless otherwise noted)

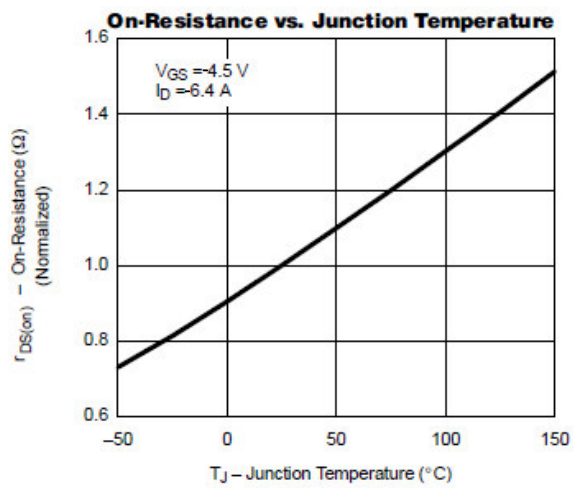
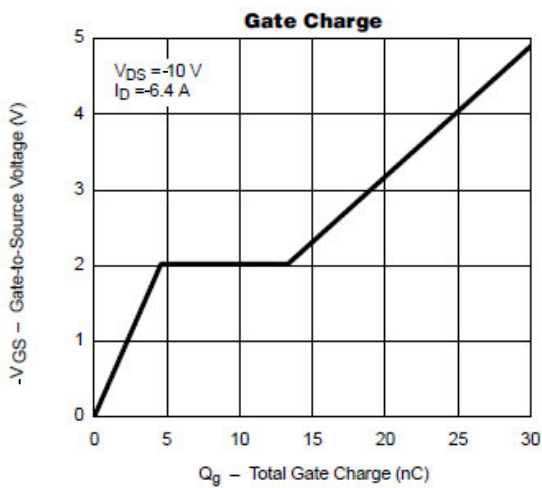
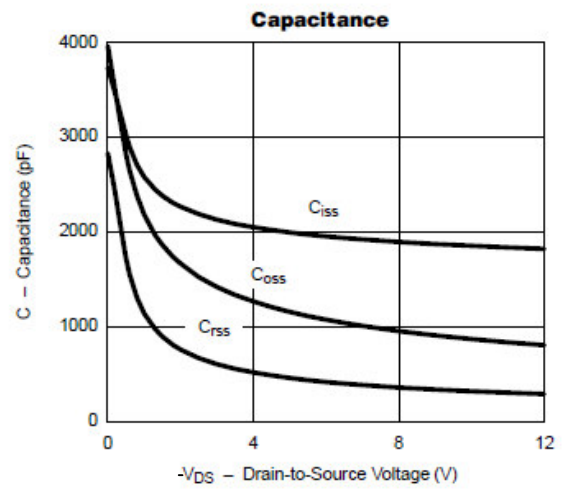
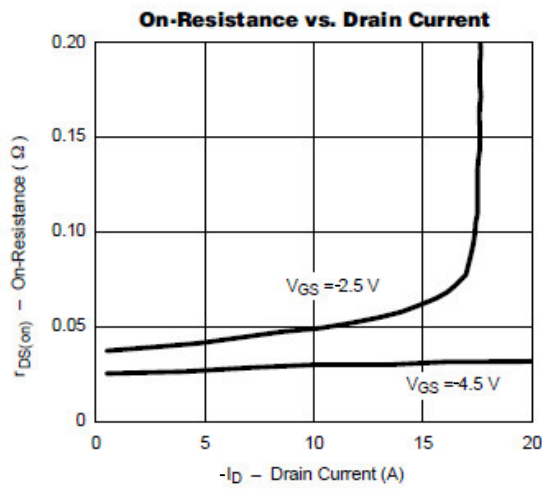
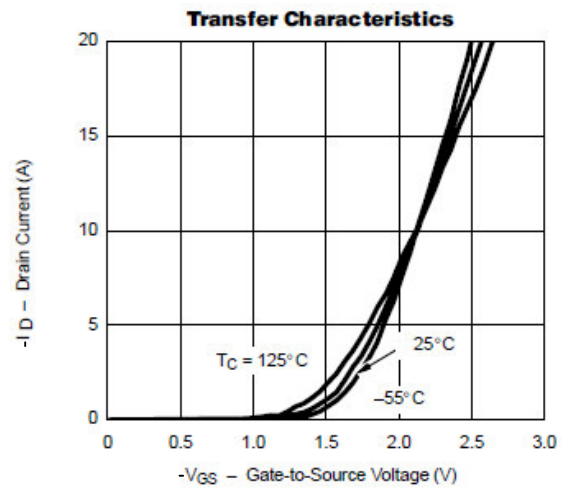
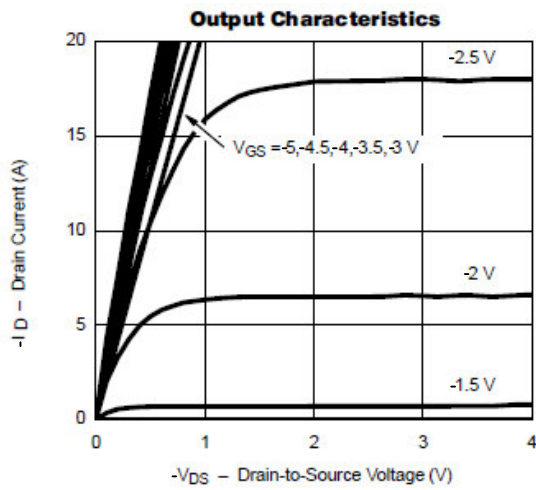
| Symbol | Parameter | Typical | Unit |
|------------------|---|----------------------|-------|
| V _{DSS} | Drain-Source Voltage | -20 | V |
| V _{GSS} | Gate -Source Voltage | ±12 | V |
| I _D | Continuous Drain Current(T _J =150°C) | T _A =25°C | -6.5 |
| | | T _A =70°C | -4.5 |
| I _{DM} | Pulsed Drain Current | -10 | A |
| I _S | Continuous Source Current(Diode Conduction) | -2.5 | A |
| P _D | Power Dissipation | T _A =25°C | 2.8 |
| | | T _A =70°C | 1.8 |
| T _J | Operating Junction Temperature | 150 | °C |
| T _{STG} | Storage Temperature Range | -55/150 | °C |
| R _{θJA} | Thermal Resistance-Junction to Ambient | 62.5 | °C/ W |

Electrical Characteristics

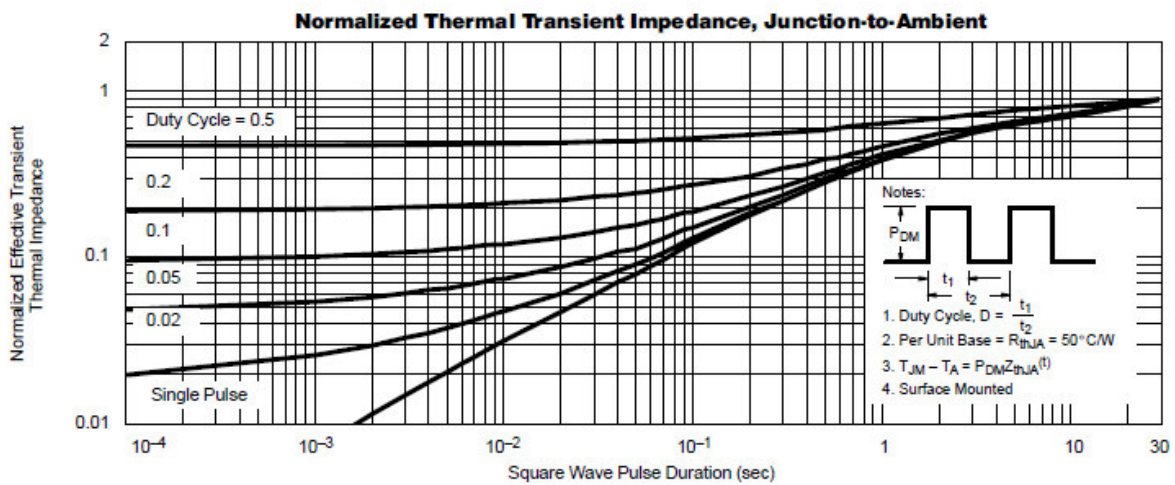
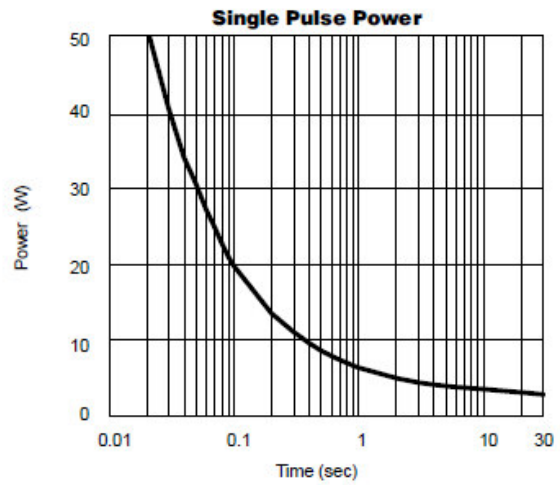
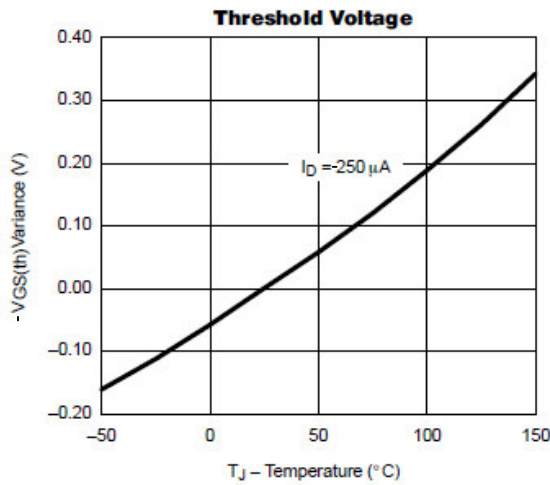
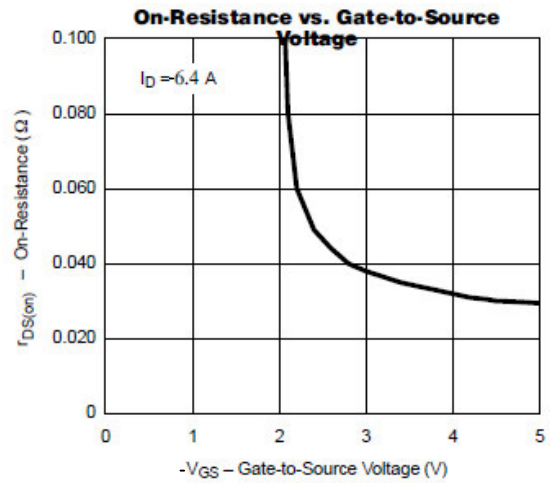
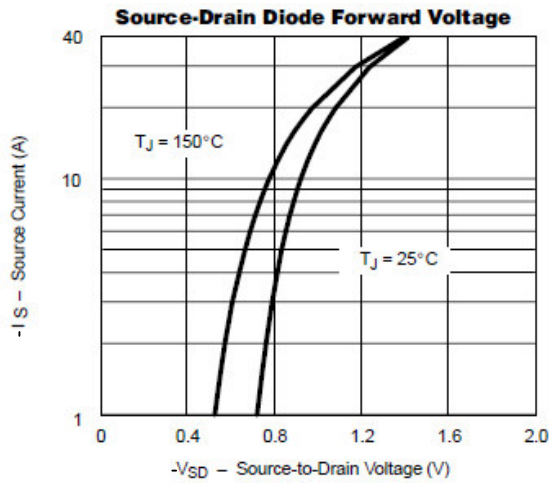
(T_A=25°C unless otherwise noted)

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|----------------------|---------------------------------|--|------|-------|------|------|
| Static | | | | | | |
| V _{(BR)DSS} | Drain-Source Breakdown Voltage | V _{GS} =0V, I _D =-250μA | -20 | | | V |
| V _{GS(th)} | Gate Threshold Voltage | V _{DS} =V _{GS} , I _D =-250μA | -0.4 | | -0.8 | |
| I _{GSS} | Gate Leakage Current | V _{DS} =0V, V _{GS} =±12V | | | ±100 | nA |
| I _{DSS} | Zero Gate Voltage Drain Current | V _{DS} =-16V, V _{GS} =0V | | | -1 | μA |
| | | V _{DS} =-16V, V _{GS} =0V, T _J =85°C | | | -10 | |
| I _{D(on)} | On-State Drain Current | V _{DS} ≤-5V, V _{GS} =-4.5V | -10 | | | A |
| | | V _{DS} ≤-5V, V _{GS} =-2.5V | -5 | | | |
| R _{DS(on)} | Drain-Source On-Resistance | V _{GS} =-4.5V, I _D =-6.5A | | 36 | 42 | mΩ |
| | | V _{GS} =-2.5V, I _D =-4.5A | | 48 | 58 | |
| | | V _{GS} =-1.8V, I _D =-2.5A | | 64 | 72 | |
| g _{fs} | Forward Transconductance | V _{DS} =-9V, I _D =-6.5A | | 14 | | S |
| V _{SD} | Diode Forward Voltage | I _S =-2.5A, V _{GS} =0V | | -0.85 | -1.2 | V |
| Dynamic | | | | | | |
| C _{iss} | Input Capacitance | V _{DS} =-15V, V _{GS} =0V, f=1MHz | | 950 | | pF |
| C _{oss} | Output Capacitance | | | 200 | | |
| C _{rss} | Reverse Transfer Capacitance | | | 175 | | |
| Q _g | Total Gate Charge | V _{DS} =-15V, V _{GS} =-4.5V, I _D =-6.0A | | 10 | 18 | nC |
| Q _{gs} | Gate-Source Charge | | | 1.6 | | |
| Q _{gd} | Gate-Drain Charge | | | 3.0 | | |
| t _{d(on)} | Turn-On Time | V _{DD} =-15V, R _L =15Ω, I _D =-5.0A V _{GEN} =-10V, R _G =6Ω | | 8 | 18 | ns |
| T _r | | | | 8 | 18 | |
| t _{d(off)} | Turn-Off Time | | | 25 | 50 | |
| T _f | | | | 25 | 35 | |

Typical Performance Characteristics

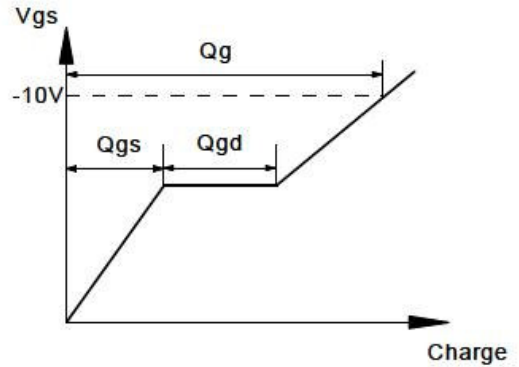
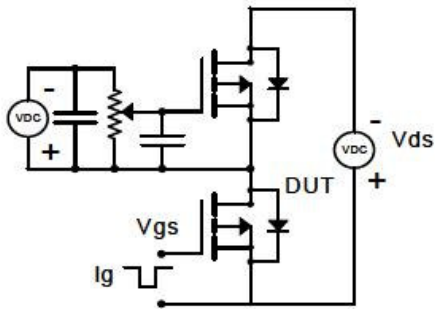


Typical Performance Characteristics (continue)

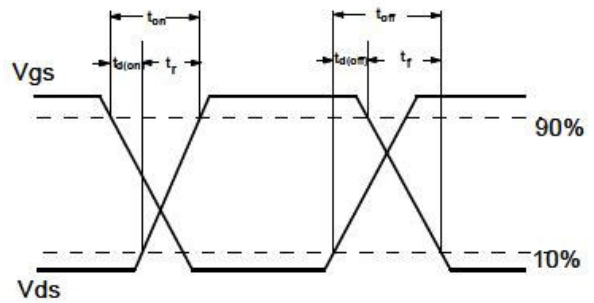
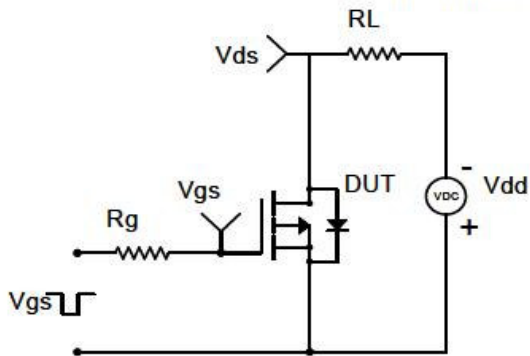


Typical Performance Characteristics (continue)

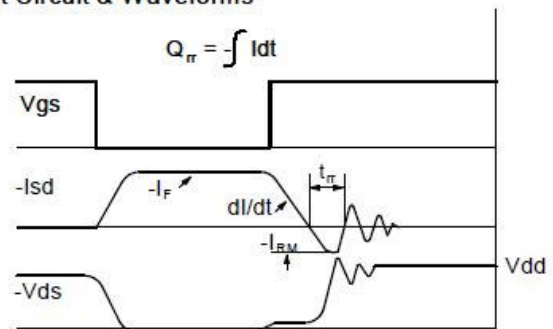
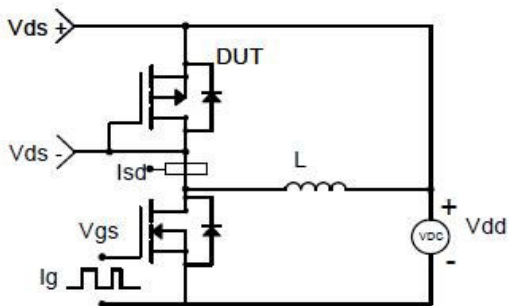
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

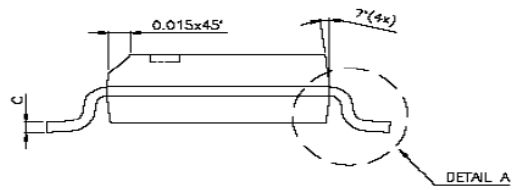
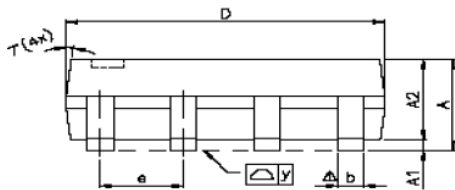
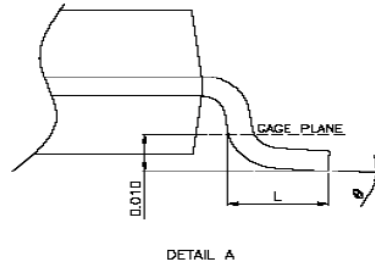
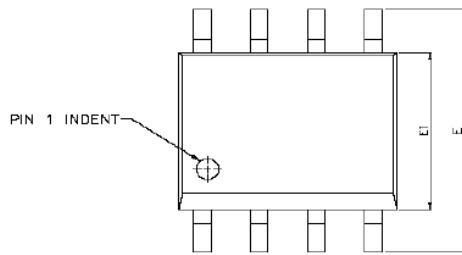


Diode Recovery Test Circuit & Waveforms



Package Dimension

SOP-8P PLASTIC PACKAGE







Dimensions





| SYMBOL | Millimeters | | | Inches | | |
|------------|-------------|------|-------|--------|-------|--------|
| | MIN | NOM | MAX | MIN | NOM | MAX |
| A | 1.47 | 1.60 | 1.73 | 0.058 | 0.063 | 0.068 |
| A1 | 0.10 | - | 0.25 | 0.004 | - | 0.010 |
| A2 | - | 1.45 | - | - | 0.057 | - |
| b | 0.33 | 0.41 | 0.51 | 0.013 | 0.016 | 0.020 |
| C | 0.19 | 0.20 | 0.25 | 0.0075 | 0.008 | 0.0098 |
| D | 4.80 | 4.85 | 4.95 | 0.189 | 0.191 | 0.195 |
| E | 5.80 | 6.00 | 6.20 | 0.228 | 0.236 | 0.244 |
| E1 | 3.80 | 3.90 | 4.00 | 0.150 | 0.154 | 0.157 |
| e | - | 1.27 | - | - | 0.050 | - |
| L | 0.38 | 0.71 | 1.27 | 0.015 | 0.028 | 0.050 |
| Δy | - | - | 0.076 | - | - | 0.003 |
| θ | 0° | - | 8° | 0° | - | 8° |



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