

GENERAL DESCRIPTION

- ◆ $V_{DS} = -30V$, $I_D = -5.3A$
- ◆ $R_{DS(ON)}$, $V_{GS} @ -10V$, $I_{DS} @ -5.3A = 60m\Omega$
- ◆ $R_{DS(ON)}$, $V_{GS} @ -4.5V$, $I_{DS} @ -4.2A = 90m\Omega$

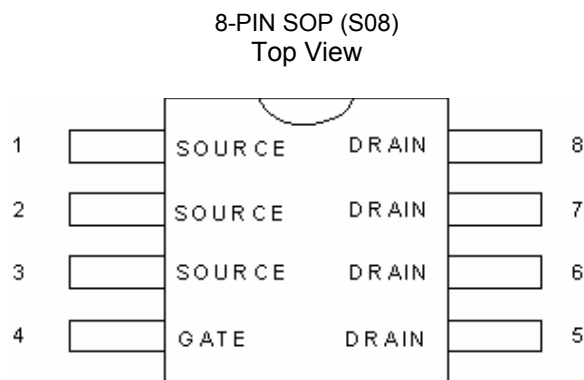
FEATURES

- ◆ Advanced trench process technology
- ◆ High Density Cell Design For Ultra Low On-Resistance
- ◆ Fully Characterized Avalanche Voltage and Current
- ◆ Improved Shoot –Through FOM

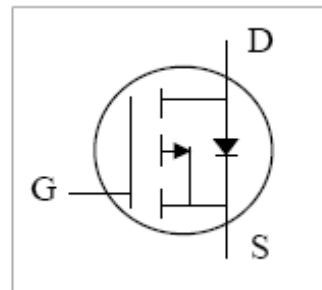
APPLICATIONS

- ◆ Power Management in Notebook
- ◆ Portable Equipment
- ◆ Battery Powered System
- ◆ DC/DC Converter
- ◆ Load Switch
- ◆ DSC
- ◆ LCD Display inverter

PIN CONFIGURATION



SYMBOL



P-Channel MOSFET

ORDERING INFORMATION

| Part Number | Package |
|-------------|---------|
| CMT9435G | SOP-8 |

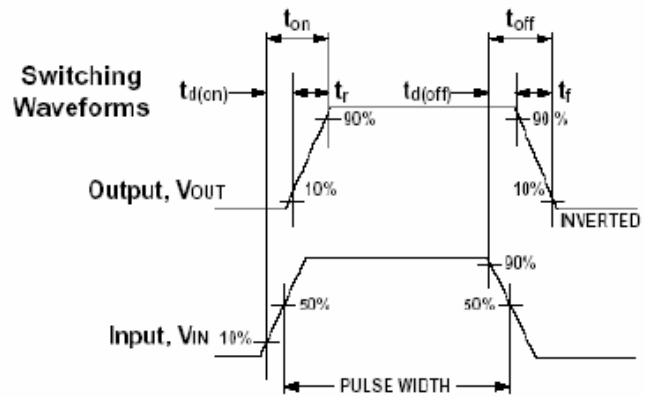
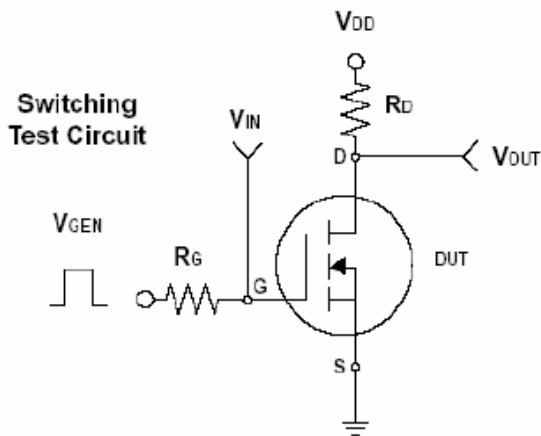
*Note: G : Suffix for Pb Free Product

ABSOLUTE MAXIMUM RATINGS

(TA=25°C unless otherwise noted)

| Rating | Symbol | Value | Unit |
|--|------------------|----------------------|------|
| Drain-Source Voltage | V _{DS} | -30 | V |
| Gate-Source Voltage | V _{GS} | ±20 | V |
| Continuous Drain Current | I _D | -5.3 | A |
| Pulsed Drain Current | I _{DM} | -20 | A |
| Maximum Power Dissipation | P _D | T _A =25°C | 2.5 |
| | | T _A =75°C | |
| Operating Junction Temperature Range | T _J | -55 to 150 | °C |
| Storage Temperature Range | T _{STG} | -55 to 150 | °C |
| Junction-to-Ambient Thermal Resistance (PCB mount) | R _{qJA} | 50 | °C/W |
| Junction-to-Case Thermal Resistance | R _{qJC} | 30 | °C/W |

Note : 1. Repetitive Rating : Pulse width limited by the Maximum junction temperature
 2. 1-in² 2oz Cu PCB board
 3. Guaranteed by design ; not subject to production testing



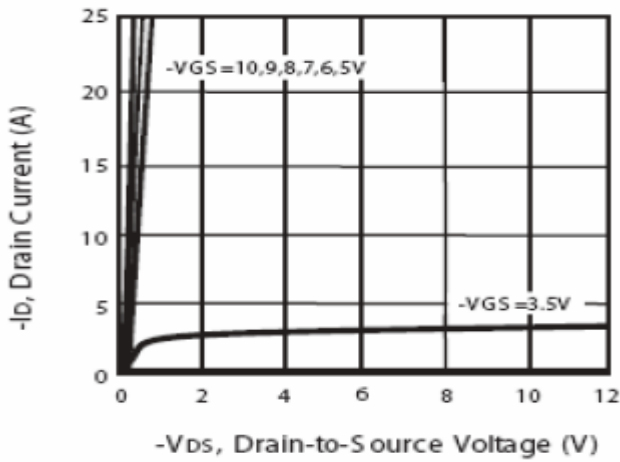
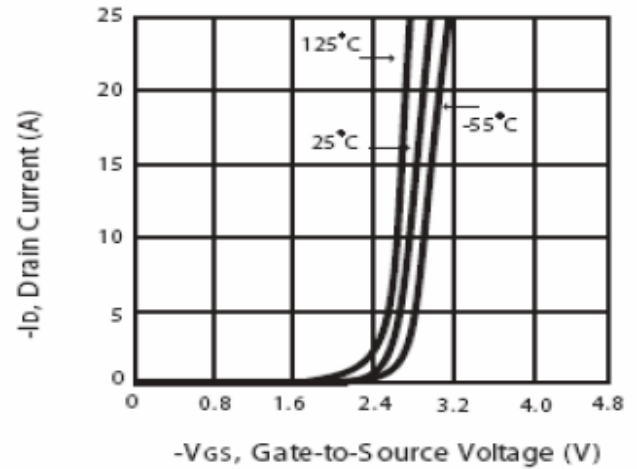
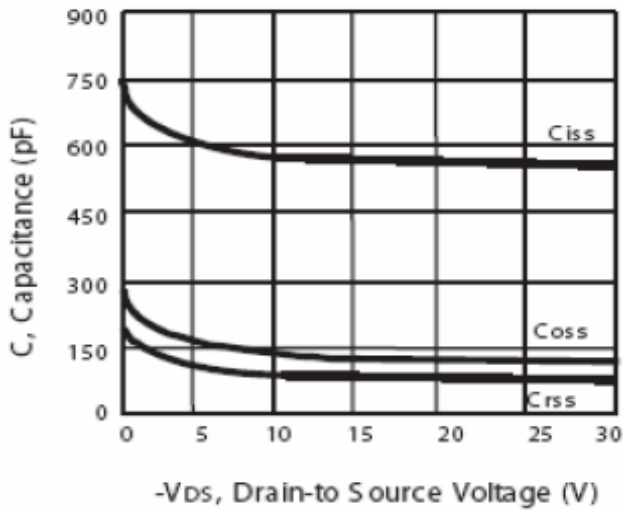
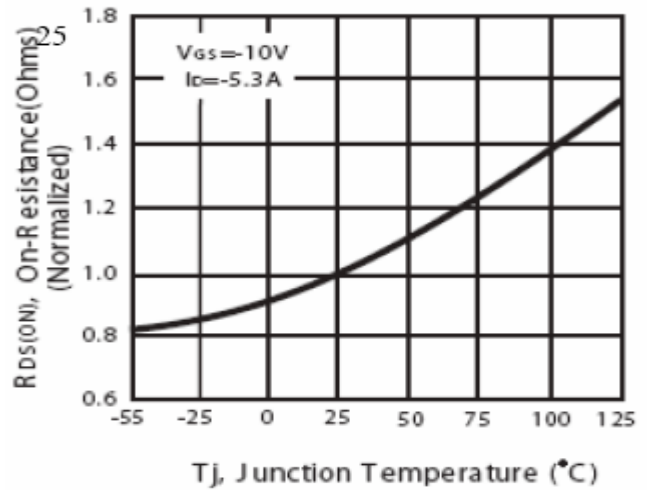
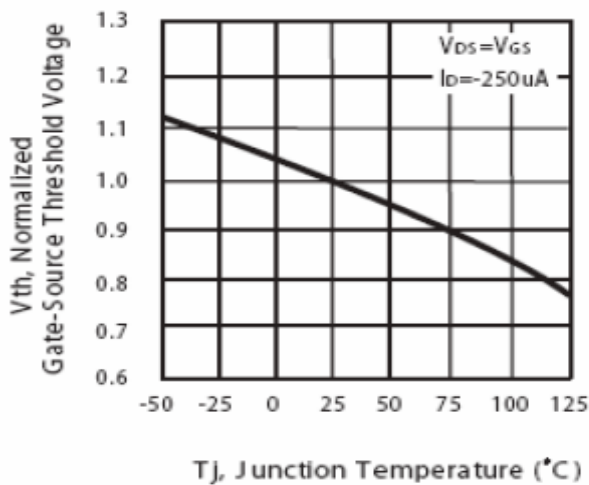
ELECTRICAL CHARACTERISTICS

 Unless otherwise specified, $T_J = 25^\circ\text{C}$. C(unless otherwise specified)

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Units |
|---------------------------|----------------------------------|--------------------------------|------|--------|-----------|------------|
| Static | | | | | | |
| BV_{DSS} | Drain-Source Breakdown Voltage | $V_{GS}=0V, I_D=-250\mu A$ | -30 | - | - | V |
| $R_{DS(ON)}$ | Drain-Source On-State Resistance | $V_{GS}=-10V, I_D=-5.3A$ | - | 50 | 60 | m Ω |
| $R_{DS(ON)}$ | Drain-Source On-State Resistance | $V_{GS}=-4.5V, I_D=-4.2A$ | - | 75 | 90 | m Ω |
| $V_{GS(th)}$ | Gate Threshold Voltage | $V_{DS}=V_{GS}, I_D=-250\mu A$ | -1.0 | -1.5 | -3.0 | V |
| g_{fs} | Forward Transconductance | $V_{DS}=10V, I_D=6A$ | 4 | 7 | - | S |
| I_{DSS} | Zero Gate Voltage Drain Current | $V_{DS}=-24V, V_{GS}=0V$ | - | - | -1 | μA |
| I_{GSS} | Gate-Body Leakage | $V_{GS}=\pm 20V, V_{DS}=0V$ | - | - | ± 100 | nA |
| Dynamic | | | | | | |
| Q_g | Total Gate Charge | $I_D=-5.3A$ | - | 9.52 | - | nC |
| Q_{gs} | Gate-Source Charge | $V_{DS}=-15V$ | - | 3.43 | - | nC |
| Q_{gd} | Gate-Drain Charge | $V_{GS}=-10V$ | - | 1.71 | - | nC |
| $t_{d(on)}$ | Turn-On Delay Time | $V_{DD}=-15V$ | - | 10.8 | - | ns |
| t_r | Turn-On Rise Time | $I_D=-1A$ | - | 2.33 | - | ns |
| $t_{d(off)}$ | Turn-Off Delay Time | $R_G=6\Omega, V_{GEN}=-10V$ | - | 23.53 | - | ns |
| t_f | Turn-Off Fall Time | $R_L=15\Omega$ | - | 3.87 | - | ns |
| C_{iss} | Input Capacitance | $V_{GS}=0V$ | - | 551.57 | - | pF |
| C_{oss} | Output Capacitance | $V_{DS}=-15V$ | - | 90.96 | - | pF |
| C_{riss} | Reverse Transfer Capacitance | $f=1.0\text{MHz}$ | - | 60.79 | - | pF |
| Source-Drain Diode | | | | | | |
| I_S | Max. Diode Forward Current | | - | - | -1.9 | A |
| V_{SD} | Diode Forward Voltage | $I_S=-5.3A, V_{GS}=0V,$ | - | - | -1.3 | V |

Notes:

 1.Pulse test : Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

TYPICAL CHARACTERISTICS

Figure 1. Output Characteristics

Figure 2. Transfer Characteristics

Figure 3. Capacitance

Figure 4. On-Resistance Variation with Temperature

Figure 5. Gate Threshold Variation with Temperature

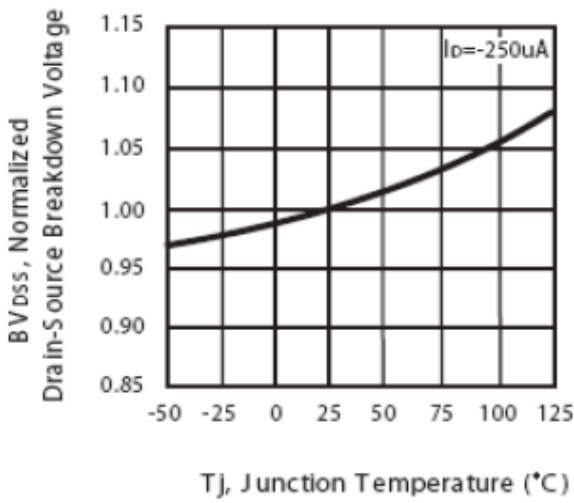


Figure 6. Breakdown Voltage Variation with Temperature

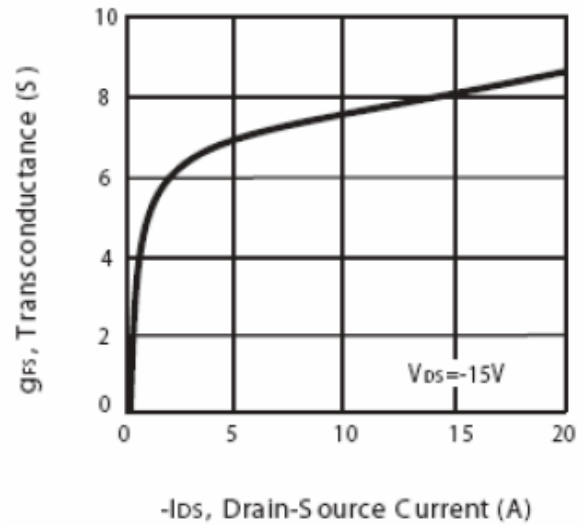


Figure 7. Transconductance Variation with Drain Current

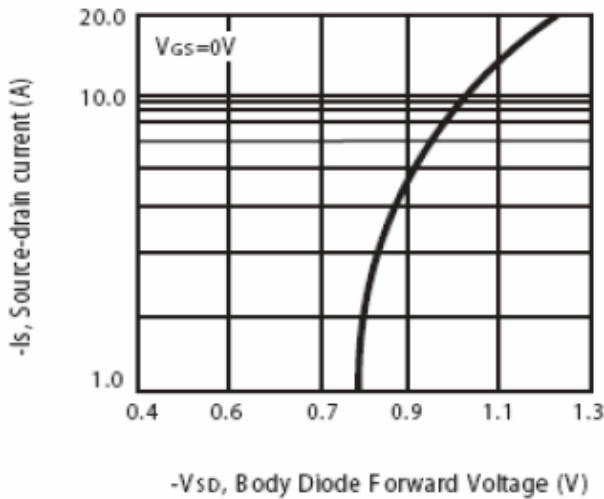


Figure 8. Body Diode Forward Voltage Variation with Source Current

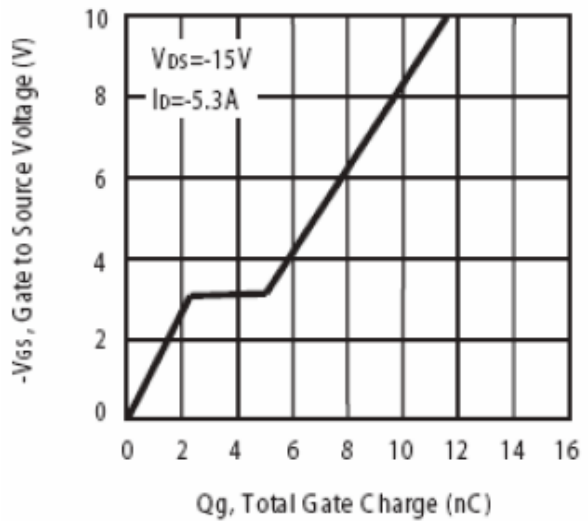


Figure 9. Gate Charge

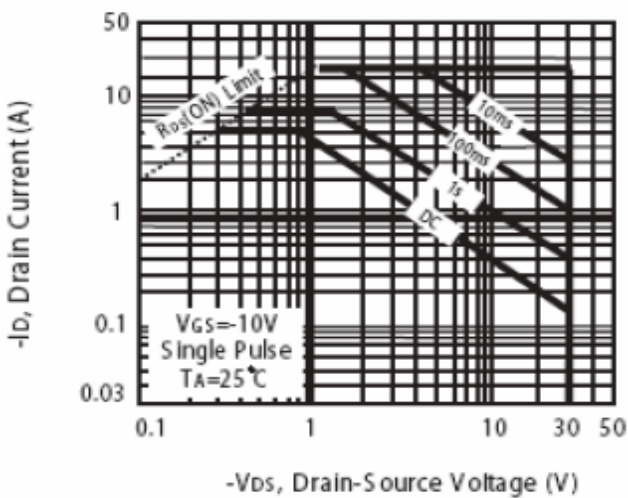
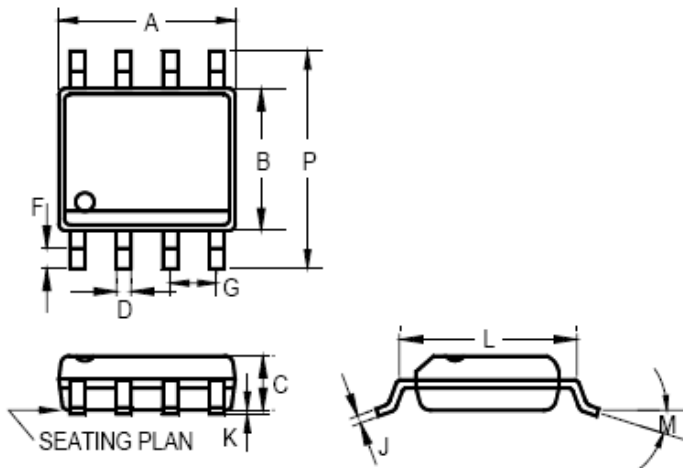


Figure 10. Maximum Safe Operating Area

PACKAGE DIMENSION
8-PIN SOP (S08)


| | INCHES | | | MILLIMETERS | | |
|---|-----------|-----|-------|-------------|-----|------|
| | MIN | TYP | MAX | MIN | TYP | MAX |
| A | 0.183 | - | 0.202 | 4.65 | - | 5.13 |
| B | 0.144 | - | 0.163 | 3.66 | - | 4.14 |
| C | 0.068 | - | 0.074 | 1.73 | - | 1.88 |
| D | 0.010 | - | 0.020 | 0.25 | - | 0.51 |
| F | 0.015 | - | 0.035 | 0.38 | - | 0.89 |
| G | 0.050 BSC | | | 1.27 BSC | | |
| J | 0.007 | - | 0.010 | 0.19 | - | 0.25 |
| K | 0.005 | - | 0.010 | 0.13 | - | 0.25 |
| L | 0.189 | - | 0.205 | 4.80 | - | 5.21 |
| M | - | - | 8° | - | - | 8° |
| P | 0.228 | - | 0.244 | 5.79 | - | 6.20 |

IMPORTANT NOTICE

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