## GENERAL DESCRIPTION

The CMT4953G provide the designer with the best combination of fast switching , ruggedized device design , low on-resistance and cost-effectiveness.

The SOP-8 package is universally preferred for all commercial-industrial mount applications and suited for low voltage applications such as DC/DC converters.

## FEATURES

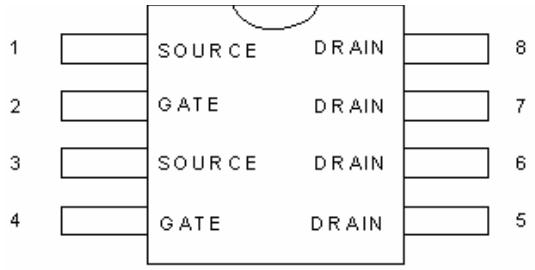
- Advanced Trench Process Technology
- High Density Cell Design For Ultra Low On-Resistance
- Fully Characterized Avalanche Voltage and Current
- Improved Shoot-Through FOM
- SO-8 Package Design

## APPLICATIONS

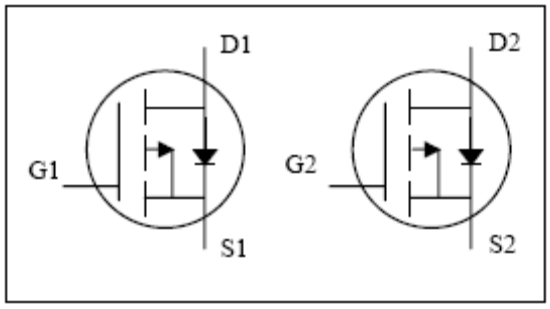
- Power Management in Notebook
- Portable Equipment
- Battery Powered System
- DC/DC Converter
- Load Switch
- DSC
- LCD Display inverter

## PIN CONFIGURATION

8-PIN SOP (S08)
Top View




## SYMBOL




**P-Channel MOSFET**

## ORDERING INFORMATION

| Part Number | Package |
|---|---|
| CMT4953G | SOP-8 |

***Note:** G : Suffix for Pb Free Product

## ABSOLUTE MAXIMUM RATINGS

| Rating | | Symbol | Value | Unit |
|---|---|---|---|---|
| Drain- Source Voltage | | $V_{DS}$ | -30 | V |
| Gate- Source Voltage | | $V_{GS}$ | ±20 | V |
| Continuous Drain Current[1] | $T_A$=25℃ | $I_D$ | -4.5 | A |
| Pulsed Drain Current[2] | | $I_{DM}$ | -23 | A |
| Total Power Dissipation[1] | $T_A$=25℃ | $P_D$ | 2 | W |
| Operating Junction Temperature Range | | $T_J$ | -55 to150 | ℃ |
| Storage Temperature Range | | $T_{STG}$ | -55 to 150 | ℃ |
| Linear Derating Factor | | | 0.02 | ℃/W |
| Thermal Resistance Junction-ambient[1] (Max) | | Rthj-amb | 62.5 | ℃/W |

## ELECTRICAL CHARACTERISTICS

Unless otherwise specified, $T_J$ = 25℃. (unless otherwise specified)

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|---|
| $BV_{DSS}$ | Drain-Source Breakdown Voltage | $V_{GS}$=0V, $I_D$=-250uA | -30 | - | - | V |
| $R_{DS(ON)}$ | Static Drain-Source On-Resistancem[2] | $V_{GS}$=-10V, $I_D$=-4.6A | - | - | 55 | mΩ |
| | | $V_{GS}$=-4.5V, $I_D$=-3.6A | - | - | 90 | mΩ |
| $V_{GS(th)}$ | Gate Threshold Voltage | $V_{DS}$=$V_{GS}$, $I_D$=-250uA | -1 | - | -2.5 | V |
| $g_{fs}$ | Forward Transconductance[2] | $V_{DS}$=-5V, $I_D$=-4.6A | - | 5 | - | S |
| $I_{DSS}$ | Drain-Source Leakage Current ($T_j$=25 C) | $V_{DS}$=-24V, $V_{GS}$=0V | - | - | -1 | uA |
| $I_{GSS}$ | Gate-Source Leakage Current | $V_{GS}$=±20V | - | - | ±100 | nA |
| $Q_g$ | Total Gate Charge[2] | $I_D$=-4.6A | - | 11.7 | - | nC |
| $Q_{gs}$ | Gate-Source Charge | $V_{DS}$=-15V | - | 2.1 | - | nC |
| $Q_{gd}$ | Gate-Drain ("Miller") Charge | $V_{GS}$=-10V | - | 2.9 | - | nC |
| $t_{d(on)}$ | Turn-on Delay Time[2] | $V_{DS}$=-15V | - | 9 | - | ns |
| $t_r$ | Rise Time | $I_D$=-1A | - | 10 | - | ns |
| $t_{d(off)}$ | Turn-off Delay Time | $R_G$=6Ω,$V_{GS}$=-10V | - | 37 | - | ns |
| $t_f$ | Fall Time | $R_D$=15Ω | - | 23 | - | ns |
| $C_{iss}$ | Input Capacitance | $V_{GS}$=0V | - | 582 | - | pF |
| $C_{oss}$ | Output Capacitance | $V_{DS}$=-15V | - | 125 | - | pF |
| $C_{rss}$ | Reverse Transfer Capacitance | f=1.0MHz | - | 86 | - | pF |

## Source-Drain Diode

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|---|
| $V_{SD}$ | Forward On Voltage[2] | $I_S$=-1.7A, $V_{GS}$=0V | - | -0.84 | -1.2 | V |

**Notes:**

1.Surface mounted on FR4 Board , t≦2%

2.Pulse width ≦300us , duty cycle ≦2%.

## TYPICAL CHARACTERISTICS

**Characteristics Curve**

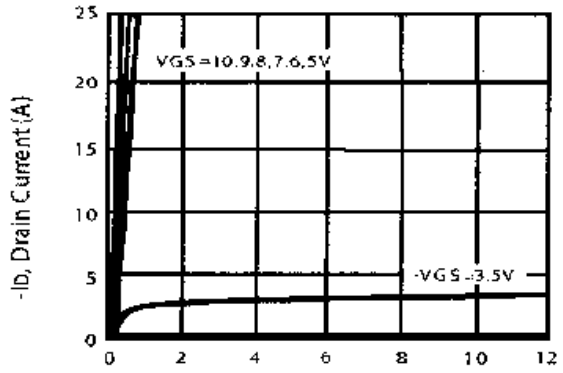



**Fig 1. Typical Output Characteristics**

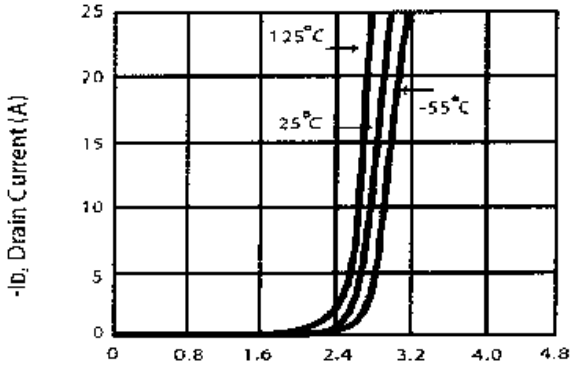



**Fig 2. Transfer Characteristics**

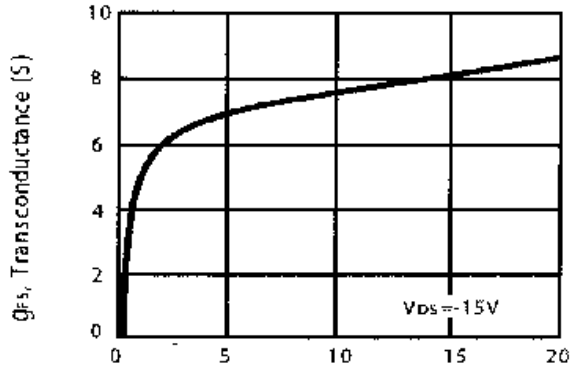



**Fig 3. Transconductance v.s. Drain Current**

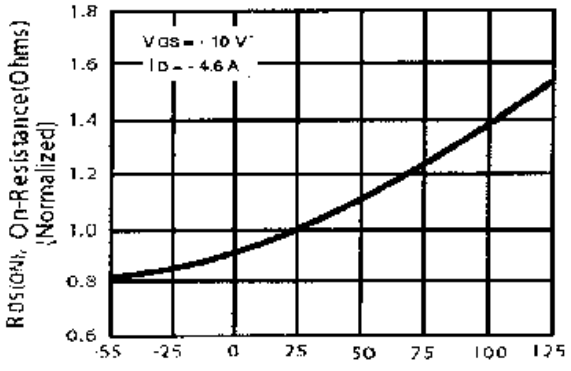



**Fig 4. On-Resistance v.s. Junction Temperature**

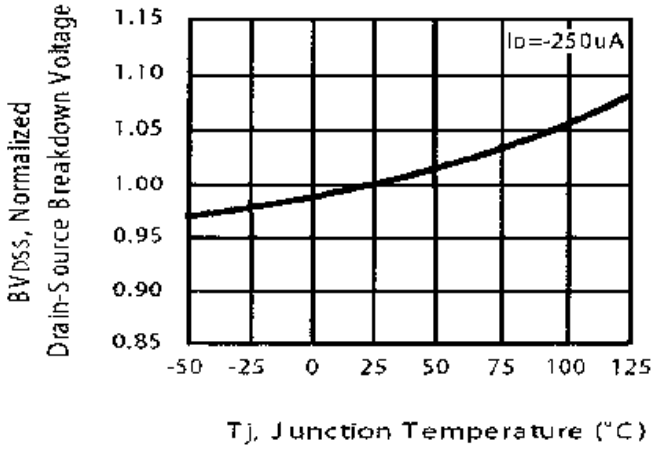



**Fig 5. Breakdown Voltage v.s. Junction Temperature**

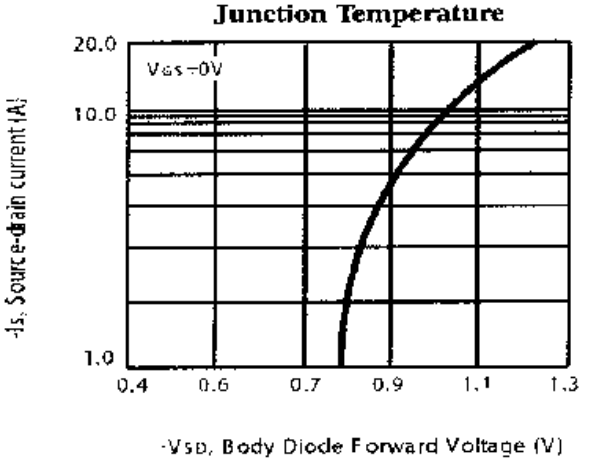



**Fig 6. Body Diode Forward Voltage v.s. Source Current**

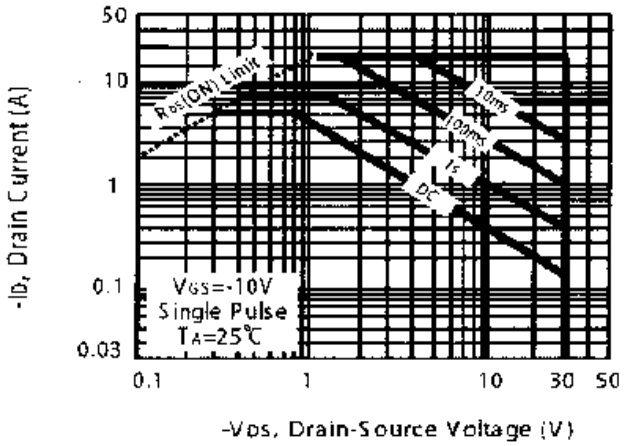



**Fig 7. Maximum Safe Operating Area**

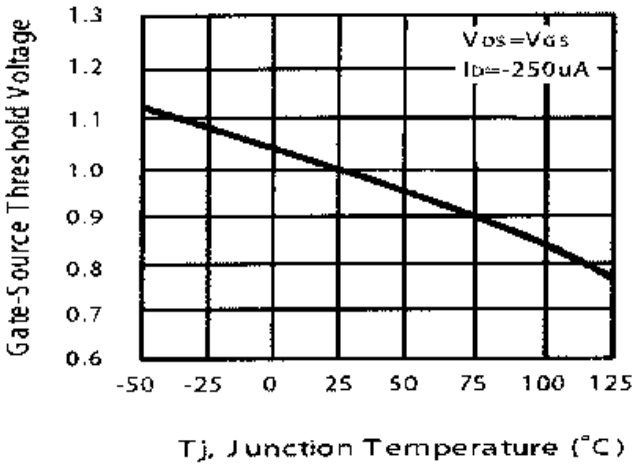



**Fig 8. Gate Threshold Voltage v.s. Junction Temperature**

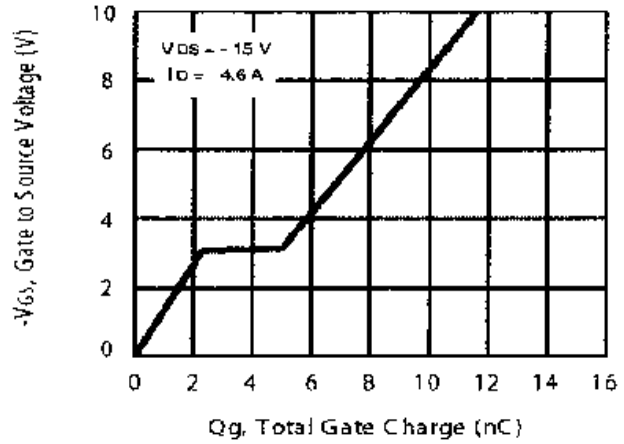



**Fig 9. Gate Charge Characteristics**

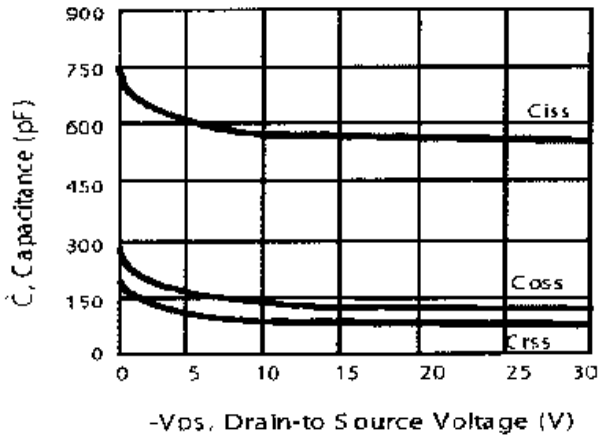



**Fig 10. Typical Capacitance Characteristics**

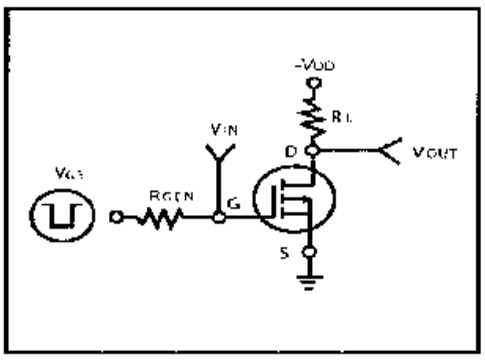



**Fig 11. Switching Time Circuit**

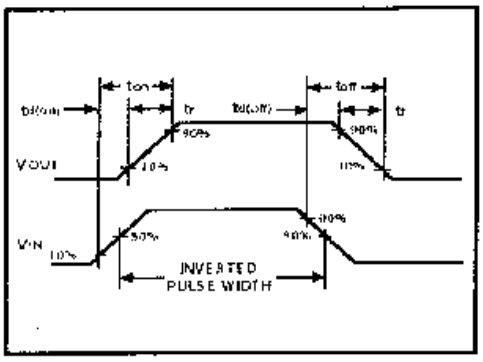



**Fig 12. Switching Time Waveform**

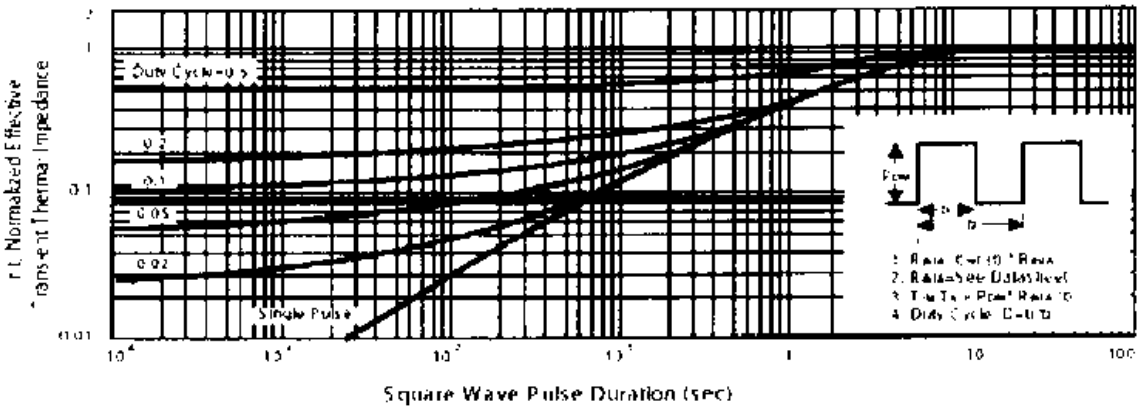
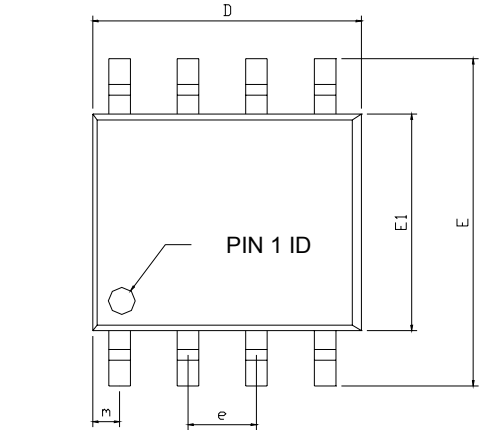



**Fig 13. Normalized Thermal Transient Impedance Curve**

## PACKAGE DIMENSION

**8-PIN SOP (S08)**




| SYMBOLS | DIMENSIONS IN MILLIMETERS | | | DIMENSIONS IN INCHS | | |
|---|---|---|---|---|---|---|
| | MIN | NOM | MAX | MIN | NOM | MAX |
| A1 | 0.10 | --- | 0.25 | 0.004 | --- | 0.010 |
| A2 | 1.40 | --- | 1.55 | 0.055 | --- | 0.061 |
| b | 0.30 | --- | 0.51 | 0.012 | --- | 0.020 |
| C | 0.15 | --- | 0.26 | 0.006 | --- | 0.010 |
| D | 4.60 | --- | 5.06 | 0.169 | --- | 0.199 |
| E | 5.79 | --- | 6.20 | 0.228 | --- | 0.244 |
| E1 | 3.76 | --- | 4.01 | 0.148 | --- | 0.158 |
| e | --- | 1.27 | --- | --- | 0.050 | --- |
| L | 0.38 | --- | 0.69 | 0.015 | --- | 0.035 |
| m | 0.43 | --- | 0.69 | 0.017 | --- | 0.027 |
| θ | 0° | --- | 8° | 0° | --- | 8° |

# IMPORTANT NOTICE

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