

### 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.

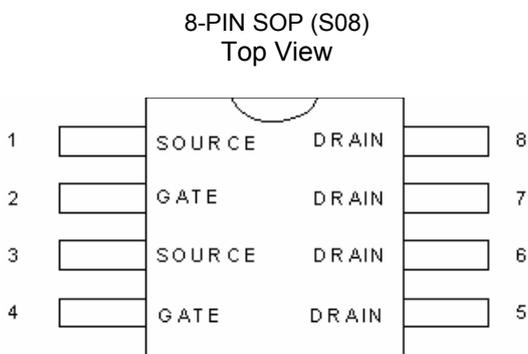
### FEATURES

- ◆ 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

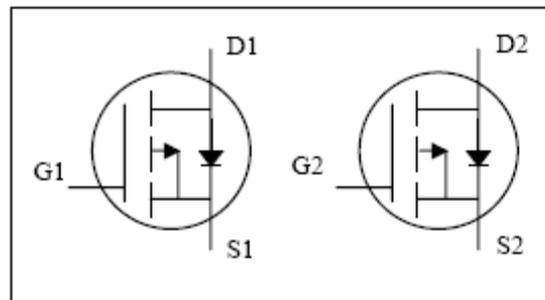
### APPLICATIONS

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

### PIN CONFIGURATION



### 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 <sub>DS</sub>	-30	V
Gate- Source Voltage	V <sub>GS</sub>	±20	V
Continuous Drain Current <sup>1</sup>	I <sub>D</sub>	-4.5	A
	T <sub>A</sub> =25°C		
Pulsed Drain Current <sup>2</sup>	I <sub>DM</sub>	-23	A
Total Power Dissipation <sup>1</sup>	P <sub>D</sub>	2	W
	T <sub>A</sub> =25°C		
Operating Junction Temperature Range	T <sub>J</sub>	-55 to 150	°C
Storage Temperature Range	T <sub>STG</sub>	-55 to 150	°C
Linear Derating Factor		0.02	°C/W
Thermal Resistance Junction-ambient <sup>1</sup> (Max)	R <sub>thj-amb</sub>	62.5	°C/W

## ELECTRICAL CHARACTERISTICS

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

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
$BV_{DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	-30	-	-	V
$R_{DS(ON)}$	Static Drain-Source On-Resistancem <sup>2</sup>	$V_{GS}=-10V, I_D=-4.6A$	-	-	55	m $\Omega$
		$V_{GS}=-4.5V, I_D=-3.6A$	-	-	90	m $\Omega$
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1	-	-2.5	V
$g_{fs}$	Forward Transconductance <sup>2</sup>	$V_{DS}=-5V, I_D=-4.6A$	-	5	-	S
$I_{DSS}$	Drain-Source Leakage Current ( $T_J=25^\circ\text{C}$ )	$V_{DS}=-24V, V_{GS}=0V$	-	-	-1	$\mu A$
$I_{GSS}$	Gate-Source Leakage Current	$V_{GS}=\pm 20V$	-	-	$\pm 100$	nA
$Q_g$	Total Gate Charge <sup>2</sup>	$I_D=-4.6A$	-	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 <sup>2</sup>	$V_{DS}=-15V$	-	9	-	ns
$t_r$	Rise Time	$I_D=-1A$	-	10	-	ns
$t_{d(off)}$	Turn-off Delay Time	$R_G=6\Omega, V_{GS}=-10V$	-	37	-	ns
$t_f$	Fall Time	$R_D=15\Omega$	-	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	$f=1.0\text{MHz}$	-	86	-	pF

## Source-Drain Diode

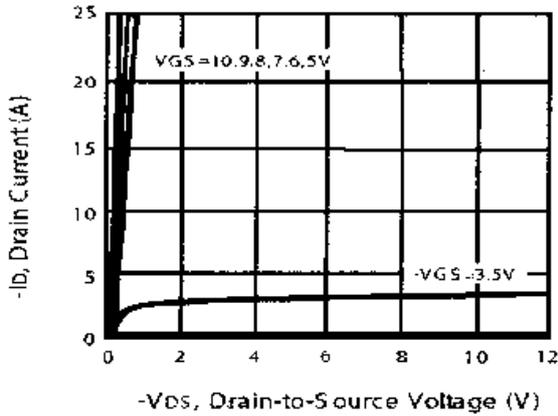
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
$V_{SD}$	Forward On Voltage <sup>2</sup>	$I_S=-1.7A, V_{GS}=0V$	-	-0.84	-1.2	V

### Notes:

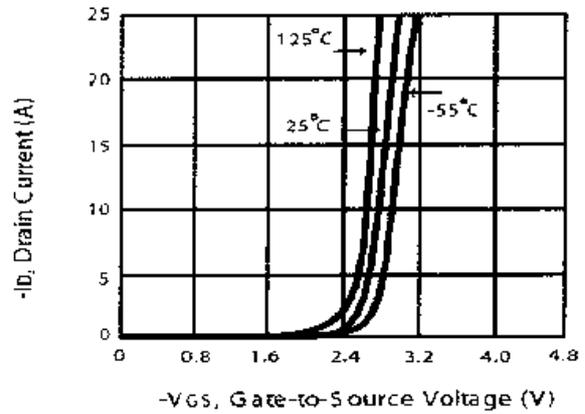
- 1.Surface mounted on FR4 Board ,  $t \leq 2\%$
- 2.Pulse width  $\leq 300\mu s$  , duty cycle  $\leq 2\%$ .

## TYPICAL CHARACTERISTICS

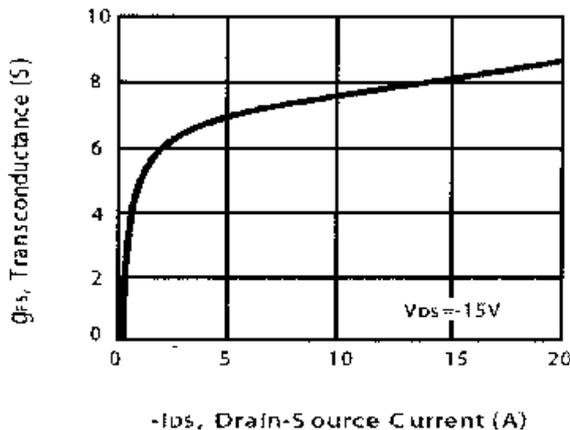
**Characteristics Curve**



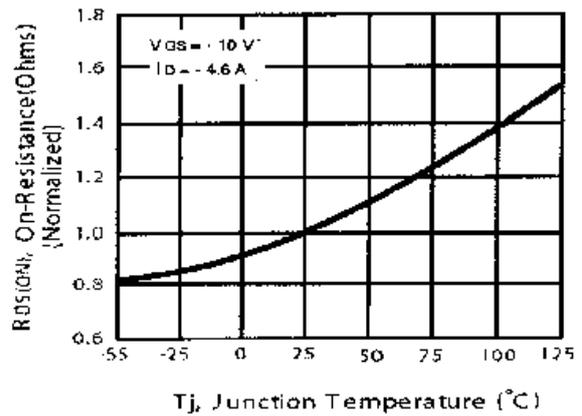
**Fig 1. Typical Output Characteristics**



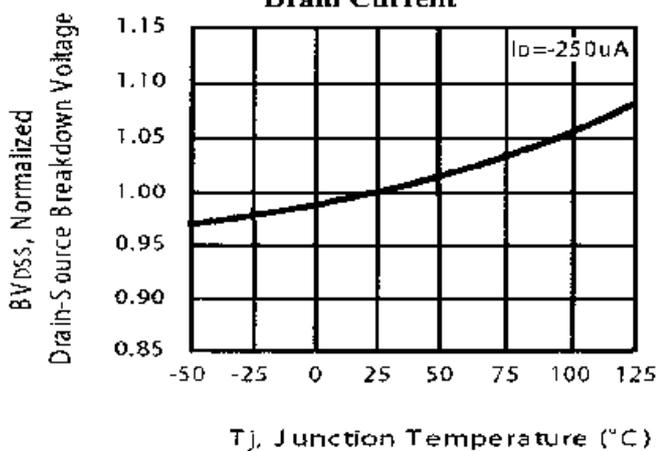
**Fig 2. Transfer Characteristics**



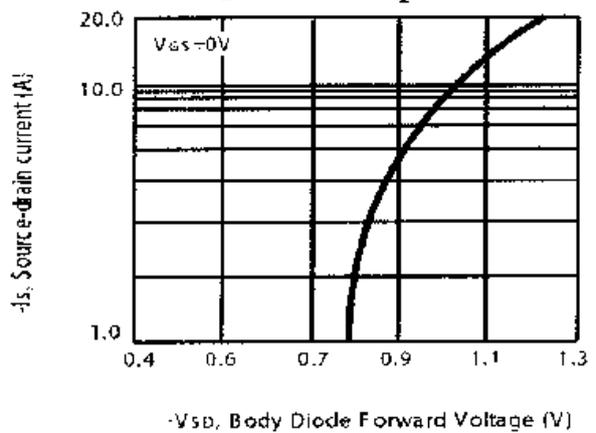
**Fig 3. Transconductance v.s. Drain Current**



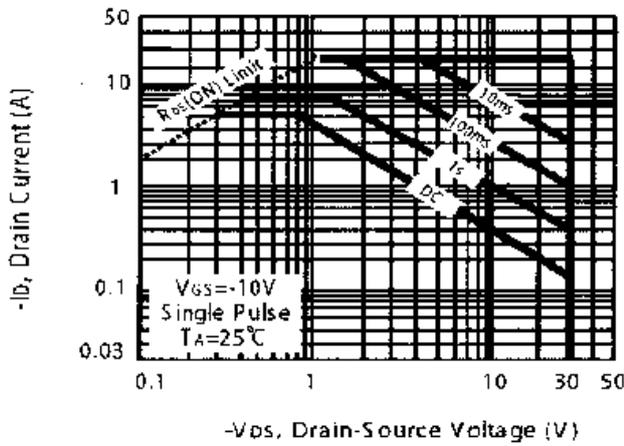
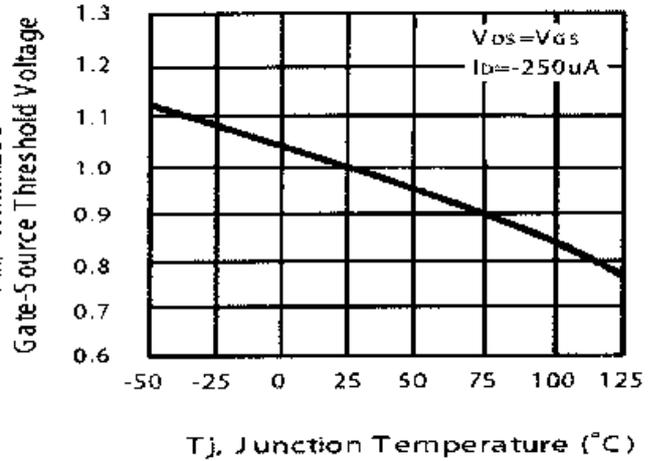
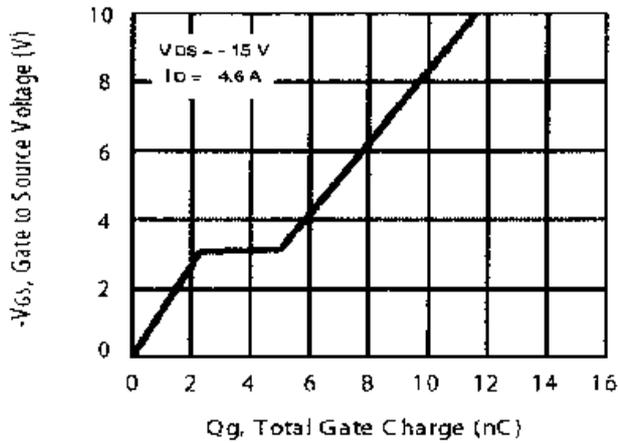
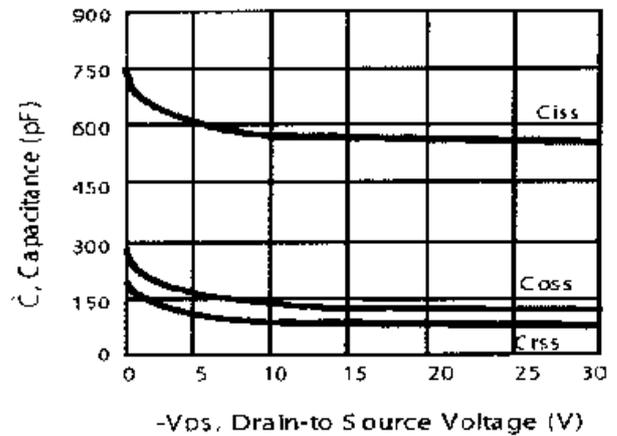
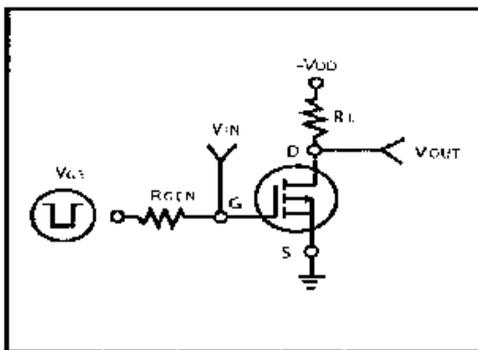
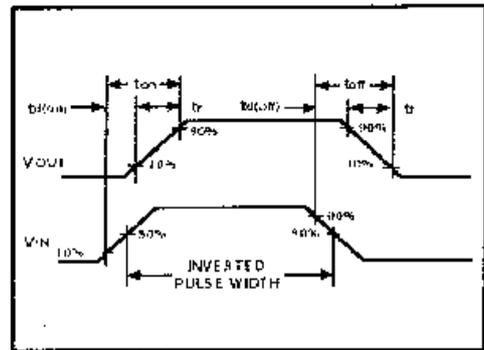
**Fig 4. On-Resistance v.s. Junction Temperature**

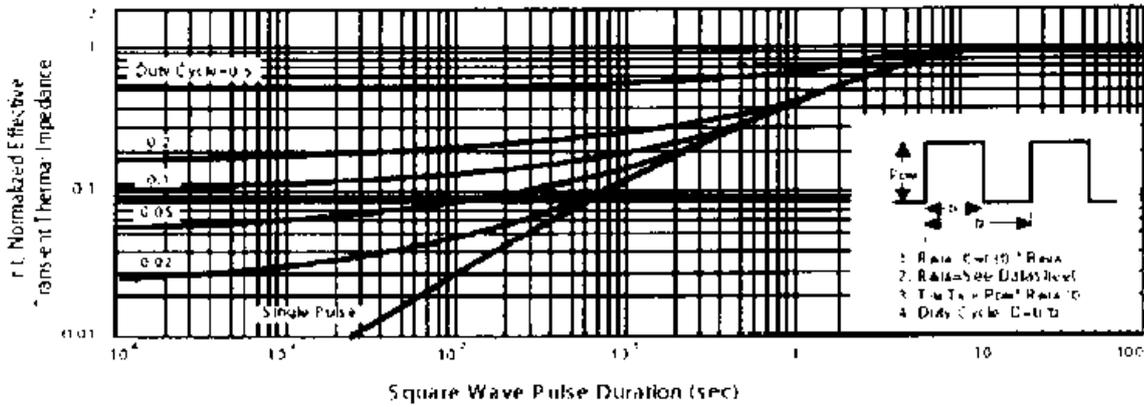
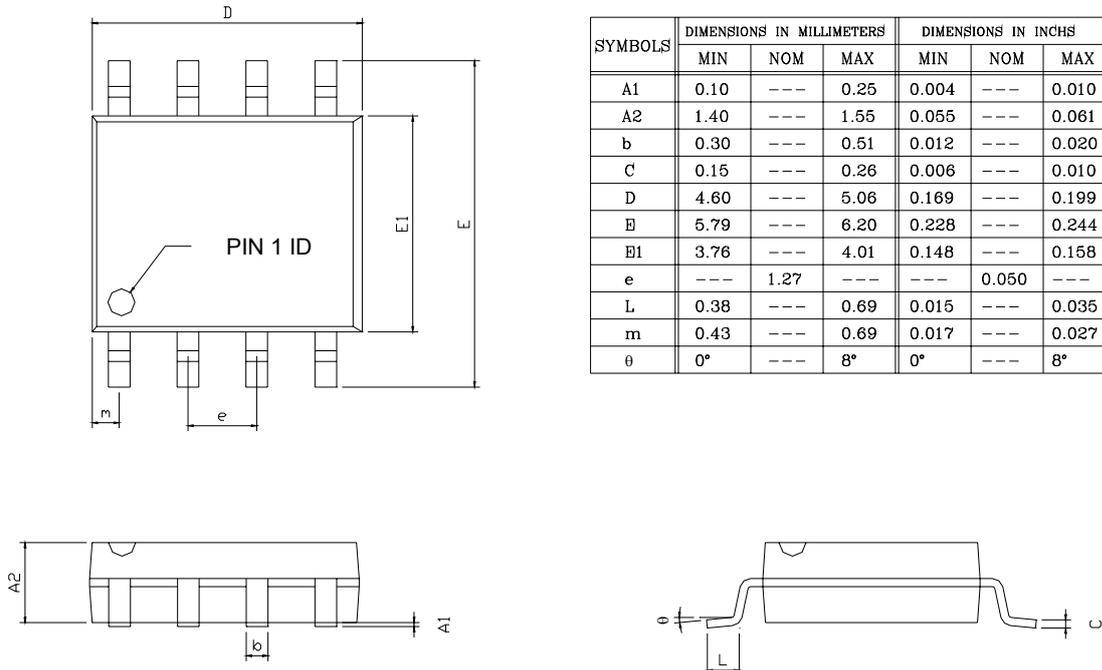


**Fig 5. Breakdown Voltage v.s. Junction Temperature**



**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)**


## **IMPORTANT NOTICE**

Champion Microelectronic Corporation (CMC) reserves the right to make changes to its products or to discontinue any integrated circuit product or service without notice, and advises its customers to obtain the latest version of relevant information to verify, before placing orders, that the information being relied on is current.

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