

## 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.

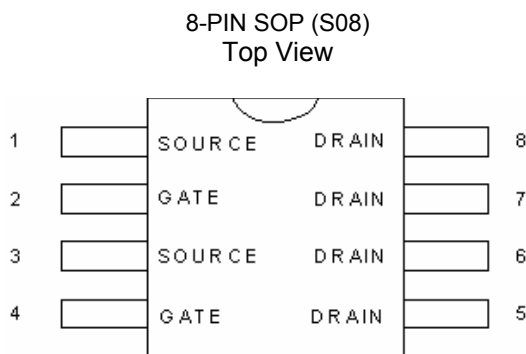
## FEATURES

- ◆ 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

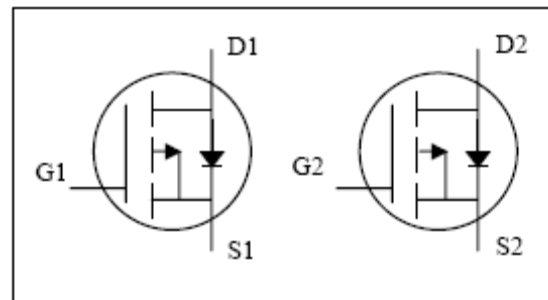
## APPLICATIONS

- ◆ 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		$V_{DS}$	-30	V
Gate- Source Voltage		$V_{GS}$	$\pm 20$	V
Continuous Drain Current <sup>1</sup>	$T_A = 25^\circ\text{C}$	$I_D$	-4.5	A
Pulsed Drain Current <sup>2</sup>		$I_{DM}$	-23	A
Total Power Dissipation <sup>1</sup>	$T_A = 25^\circ\text{C}$	$P_D$	2	W
Operating Junction Temperature Range		$T_J$	-55 to 150	$^\circ\text{C}$
Storage Temperature Range		$T_{STG}$	-55 to 150	$^\circ\text{C}$
Linear Derating Factor			0.02	$^\circ\text{C}/\text{W}$
Thermal Resistance Junction-ambient <sup>1</sup> (Max)		$R_{thj-amb}$	62.5	$^\circ\text{C}/\text{W}$

## 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-Resistance <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

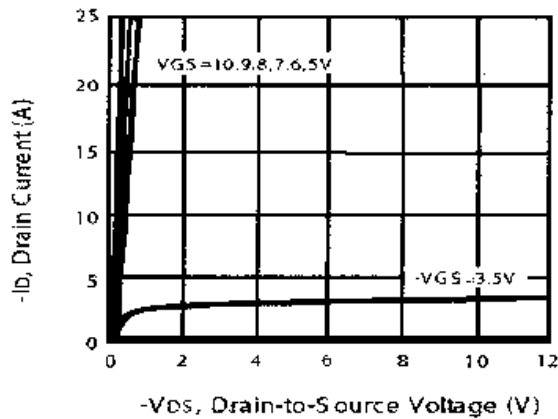
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
$V_{SD}$	Forward On Voltage <sup>2</sup>	$I_S=-1.7A, V_{GS}=0V$	-	-0.84	-1.2	V

### Notes:

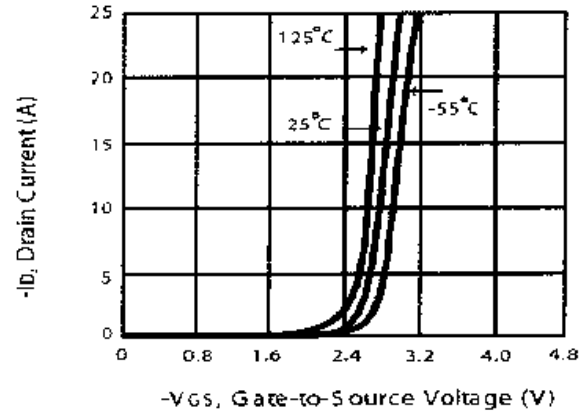
- 1.Surface mounted on FR4 Board ,  $t \leq 2\%$
- 2.Pulse width  $\leq 300\mu s$  , duty cycle  $\leq 2\%$ .

## TYPICAL CHARACTERISTICS

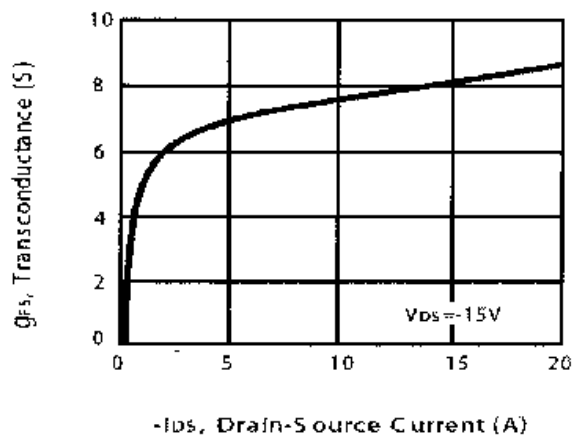
**Characteristics Curve**



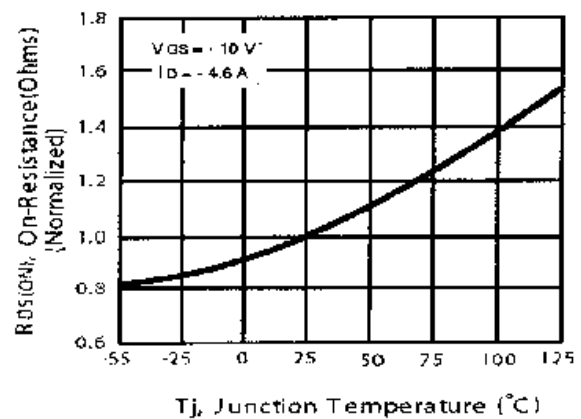
**Fig 1. Typical Output Characteristics**



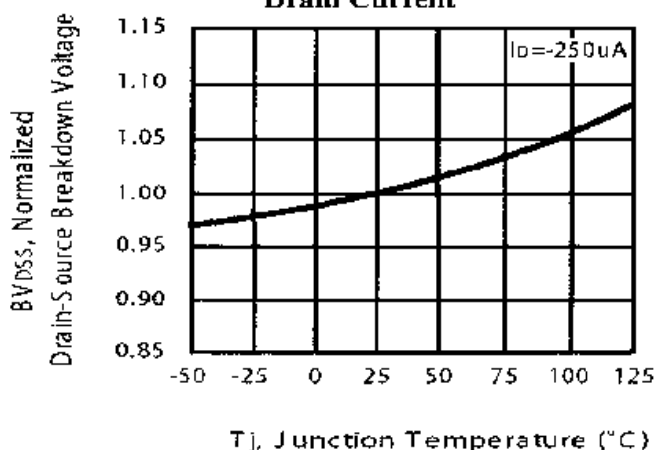
**Fig 2. Transfer Characteristics**



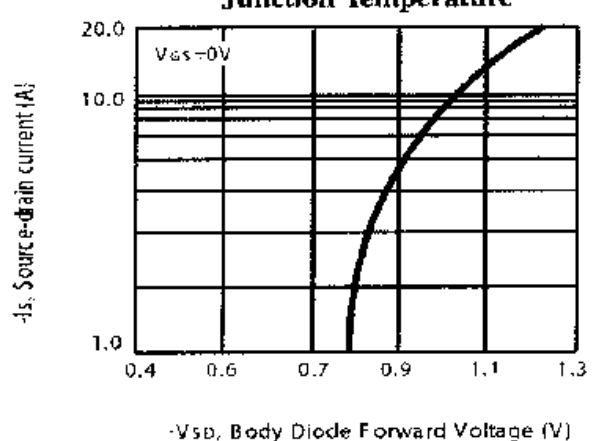
**Fig 3. Transconductance v.s. Drain Current**



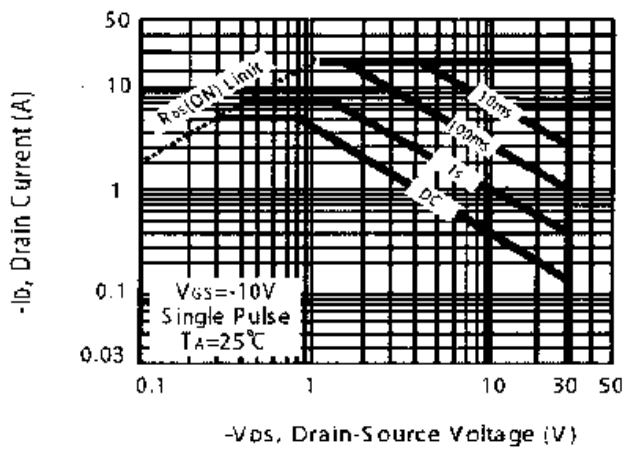
**Fig 4. On-Resistance v.s. Junction Temperature**



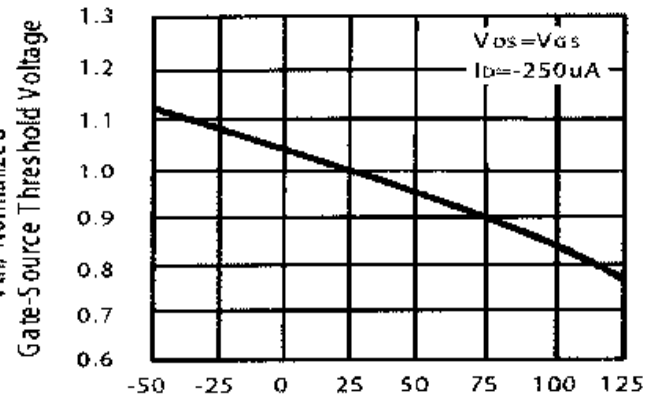
**Fig 5. Breakdown Voltage v.s. Junction Temperature**



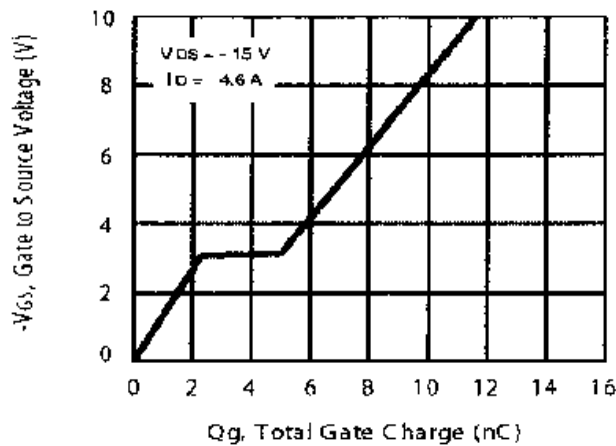
**Fig 6. Body Diode Forward Voltage v.s. Source Current**



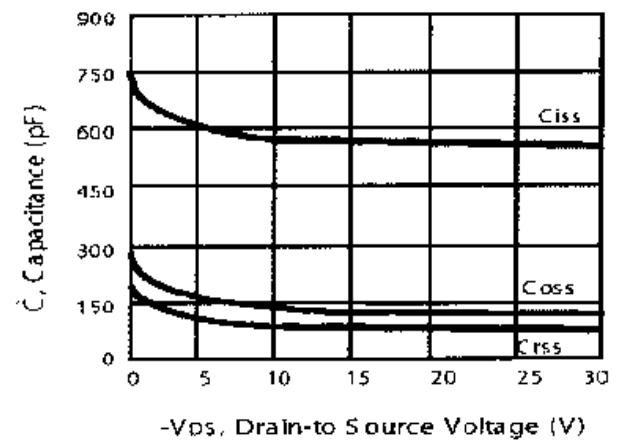
**Fig 7. Maximum Safe Operating Area**



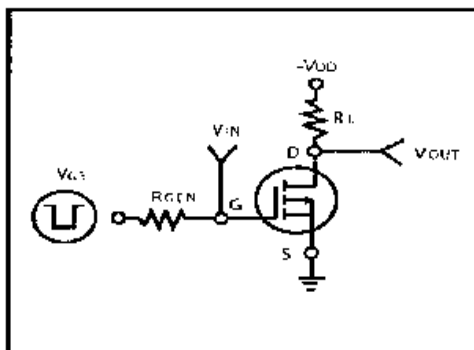
**Fig 8. Gate Threshold Voltage v.s. Junction Temperature**



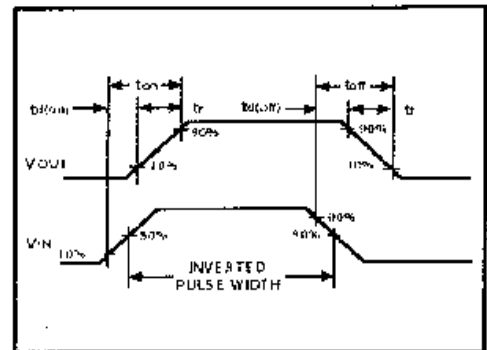
**Fig 9. Gate Charge Characteristics**



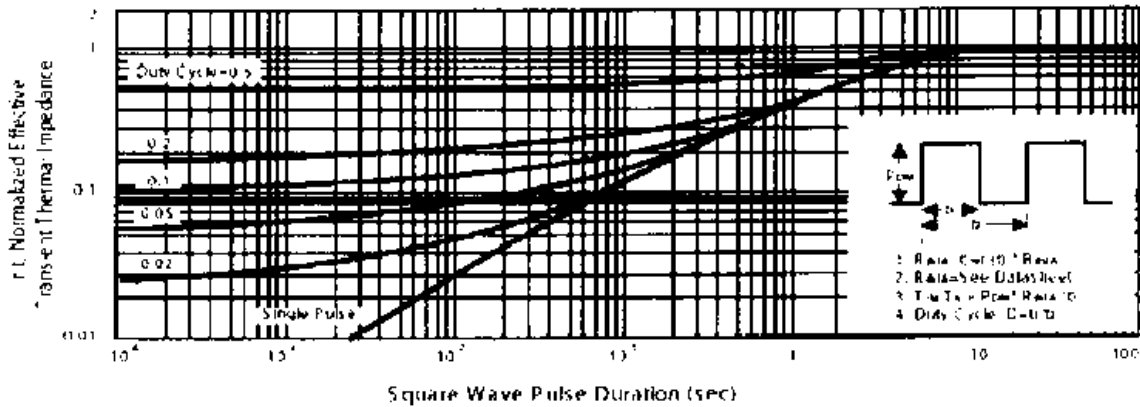
**Fig 10. Typical Capacitance Characteristics**



**Fig 11. Switching Time Circuit**



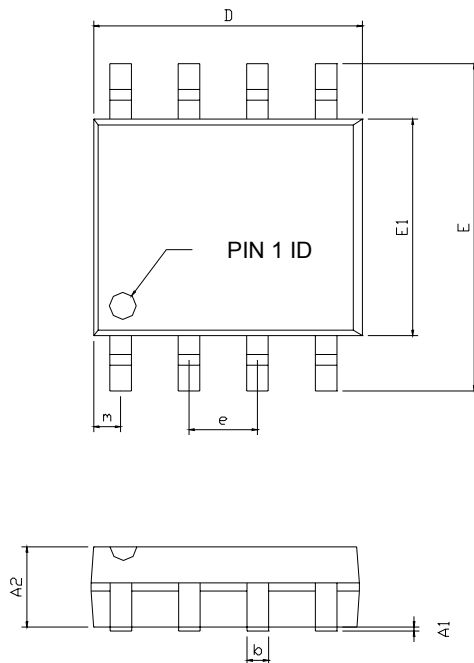
**Fig 12. Switching Time Waveform**



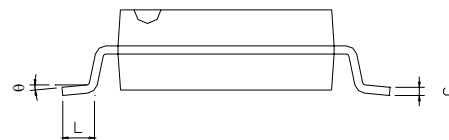
**Fig 13. Normalized Thermal Transient Impedance Curve**

## PACKAGE DIMENSION

### 8-PIN SOP (S08)



SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHES		
	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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