

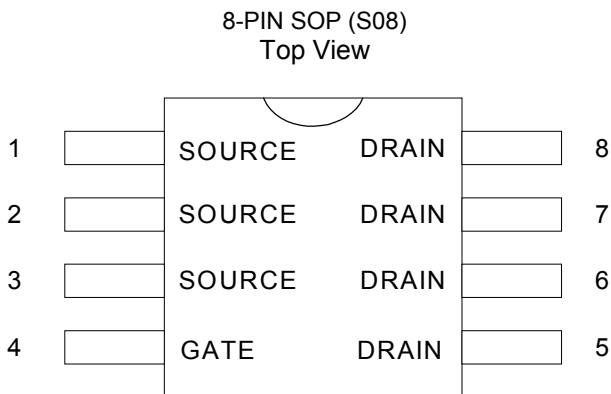
STRUCTURE

- ◆ Silicon N-channel MOSFET

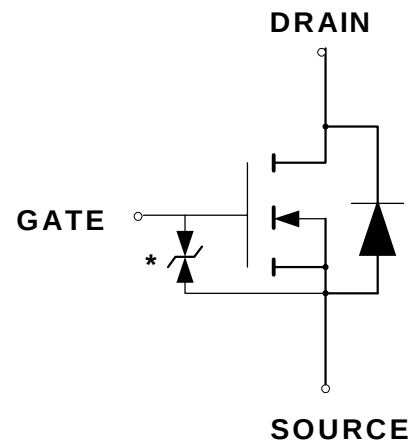
FEATURES

- ◆ Low Q_g
- ◆ Low on-resistance
- ◆ Excellent resistance to damage from static electricity

PIN CONFIGURATION



SYMBOL



N-Channel MOSFET

* Gate Protection Diode is included between the gate and the source terminals to protect the diode against static electricity when the product is in use. Use a protection circuit when the fixed voltage are exceeded.

ORDERING INFORMATION

Part Number	Package
CMT4410	8-PIN SOP (S08)

ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

Rating	Symbol	Value	Unit
Drain-to-Source Voltage	V_{DS}	30	V
Drain to Current — Continuous (at 25°C)	I_D	10	A
— Pulsed*	I_{DP}	40	A
Reverse Drain to Current — Continuous (at 25°C)	I_R	10	A
— Pulsed*	I_{DRP}	40	A
Source Current (Body Diode) — Continuous (at 25°C)	I_S	1.3	A
— Pulsed*	I_{SP}	5.2	A
Gate-to-Source Voltage — Continue	V_{GS}	± 20	V
Total Power Dissipation ($T_C = 25^\circ\text{C}$)	P_D	2.0	W
Storage Temperature Range	T_{STG}	-55 to 150	$^\circ\text{C}$
Channel Temperature	T_{ch}	150	$^\circ\text{C}$

* $P_w \leq 10\text{ms}$, Duty cycle $\leq 1\%$

THERMAL RESISTANCE ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Limits	Unit
Channel to Ambient	$R_{th(ch-A)}$	62.5	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS

Unless otherwise specified, $T_a = 25^\circ\text{C}$.

		CMT4410			
Characteristic	Symbol	Min	Typ	Max	Units
Drain-Source Breakdown Voltage ($V_{GS} = 0\text{ V}$, $I_D = 1\text{ mA}$)	$V_{(BR)DSS}$	30			V
Zero Gate Voltage Drain Current ($V_{DS} = 30\text{ V}$, $V_{GS} = 0\text{ V}$)	I_{DSS}			10	$\mu\text{ A}$
Gate-Source Leakage Current ($V_{GS} = \pm 20\text{ V}$, $V_{DS} = 0\text{ V}$)	I_{GSS}			± 10	$\mu\text{ A}$
Gate Threshold Voltage ($V_{DS} = 10\text{ V}$, $I_D = 1\text{ mA}$)	$V_{GS(th)}$	1.0		2.5	V
Static Drain-Source On-Resistance ($V_{GS} = 10\text{ V}$, $I_D = 10\text{ A}$) ($V_{GS} = 4.5\text{ V}$, $I_D = 10\text{ A}$) ($V_{GS} = 4.0\text{ V}$, $I_D = 10\text{ A}$)	$R_{DS(on)}$		9 13 15	12 18 20	$\text{m}\Omega$
Forward Transfer Admittance ($V_{DS} = 10\text{ V}$, $I_D = 10\text{ A}$) *	$ Y_{FS} $	10			mhos
Input Capacitance	$(V_{DS} = 10\text{ V}$, $f = 1\text{ MHz}$, $V_{GS} = 0\text{ V})^*$	C_{iss}	1750		pF
Output Capacitance		C_{oss}	950		pF
Reverse Transfer Capacitance		C_{rss}	450		pF
Turn-On Delay Time	$(V_{DD} = 15\text{ V}$, $I_D = 5\text{ A}$, $V_{GS} = 10\text{ V}$, $R_L = 3\Omega$, $R_{GS} = 10\Omega$) *	$t_{d(on)}$	20		ns
Rise Time		t_r	55		ns
Turn-Off Delay Time		$t_{d(off)}$	100		ns
Fall Time		t_f	70		ns
Source-Drain Reverse Recovery Time **	$I_F = 2.3\text{ A}$, $di/dt = 100\text{ A}/\mu\text{s}$	t_{rr}	50	80	ns
Total Gate Charge	$(V_{DD} = 15\text{ V}$, $I_D = 10\text{ A}$, $V_{GS} = 10\text{ V})^*$	Q_g	44.8	89.6	nC
Gate-Source Charge		Q_{gs}	5.9		nC
Gate-Drain Charge		Q_{gd}	12.2		nC

* Pulsed

BODY DIODE CHARACTERISTICS (SOURCE-DRAIN)

Unless otherwise specified, $T_a = 25^\circ\text{C}$.

		CMT4410			
Characteristic	Symbol	Min	Typ	Max	Units
Forward Voltage ($V_{GS} = 0\text{ V}$, $I_S = 5.2\text{ A}$) *	V_{SD}			1.5	V
Reverse Recovery Time	$(V_{GS} = 0\text{ V}$, $I_{DR} = 5.2\text{ A}$, $di/dt = 100\text{ A}/\mu\text{s})^*$	t_{rr}	240		ns
Reverse Recovery Charge		Q_{rr}	310		nC

TYPICAL ELECTRICAL CHARACTERISTICS

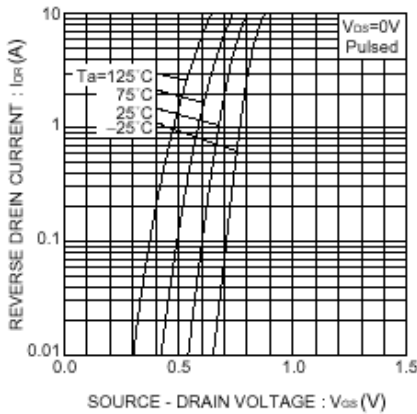


Fig.1 Reverse Drain Current vs. Source - Drain Voltage

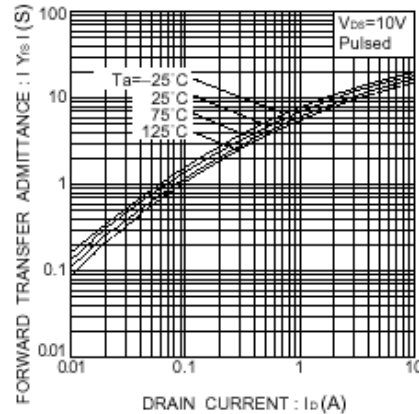


Fig.2 Forward Transfer Admittance vs. Drain Current

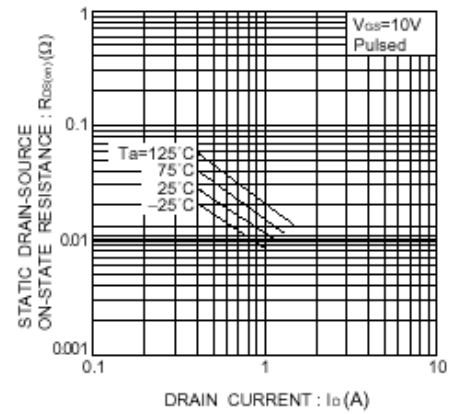


Fig.3 Static Drain-Source On-State Resistance vs. Drain Current (I)

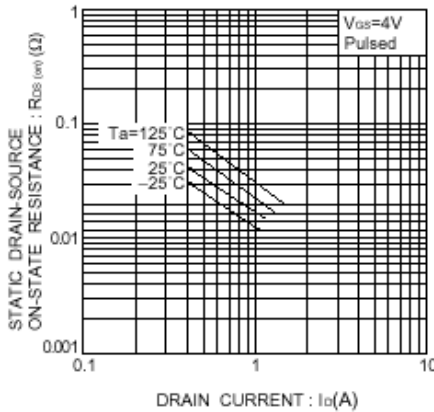


Fig.4 Static Drain-Source On-State Resistance vs. Drain Current (II)

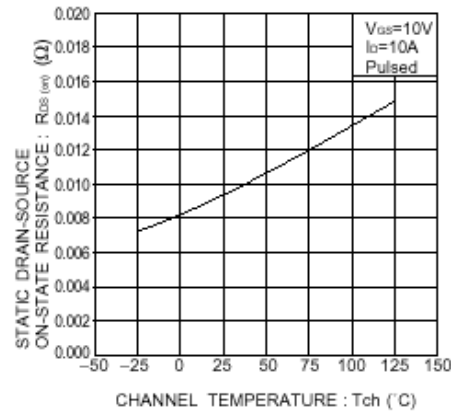


Fig.5 Static Drain-Source On-State Resistance vs. Channel Temperature

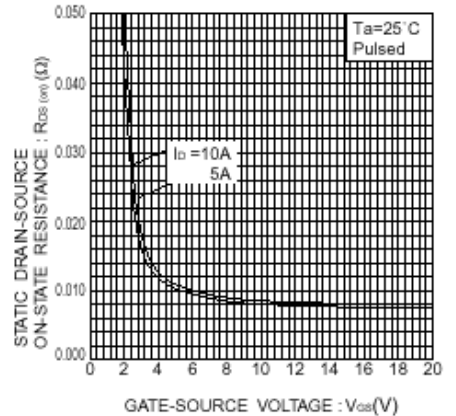


Fig.6 Static Drain-Source On-State Resistance vs. Gate-Source Voltage

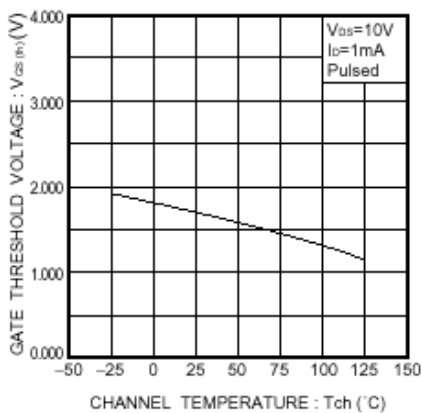


Fig.7 Gate Threshold Voltage vs. Channel Temperature

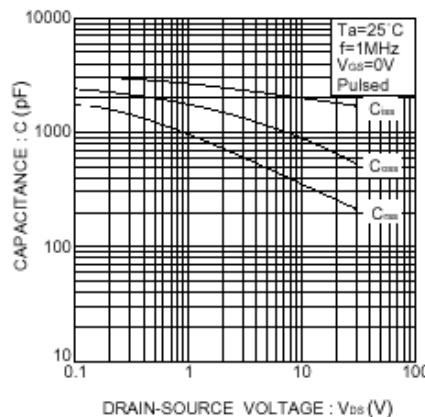


Fig.8 Typical Capacitance vs. Drain-Source Voltage

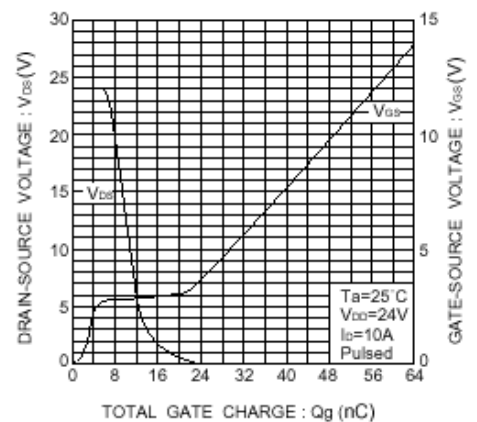


Fig.9 Dynamic Input Characteristics

TYPICAL ELECTRICAL CHARACTERISTICS (Conti.)

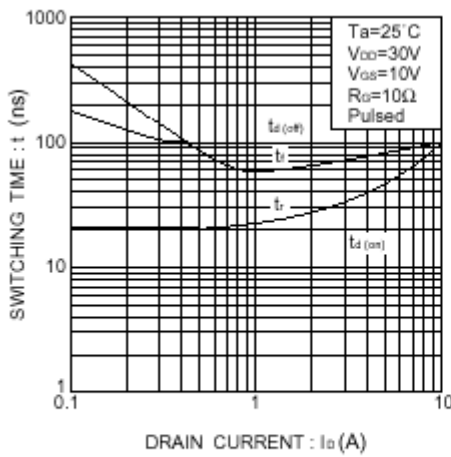


Fig.10 Switching Characteristics

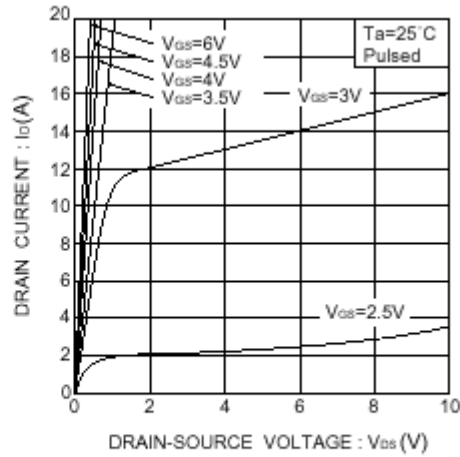


Fig.11 Typical Output Characteristics

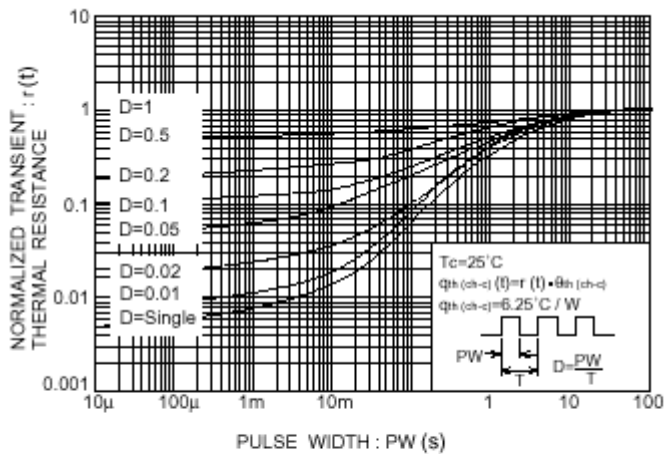
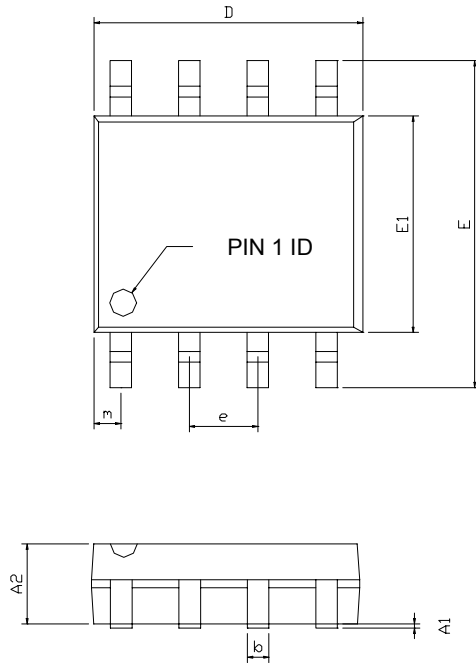
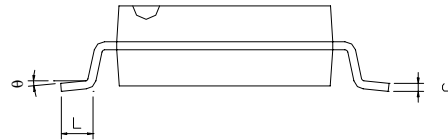


Fig.12 Normalized Transient Thermal Resistance vs. Pulse Width

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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