CMT4410
N-CHANNEL 30V MOSFET

STRUCTURE

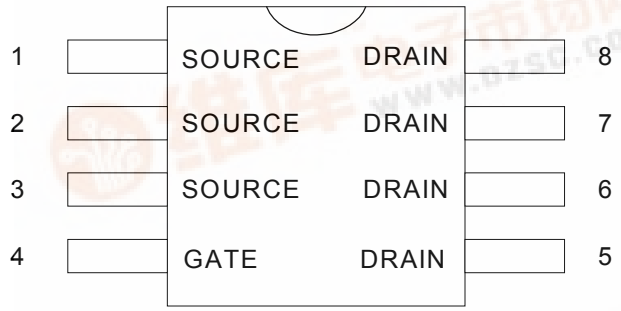
- Silicon N-channel MOSFET

FEATURES

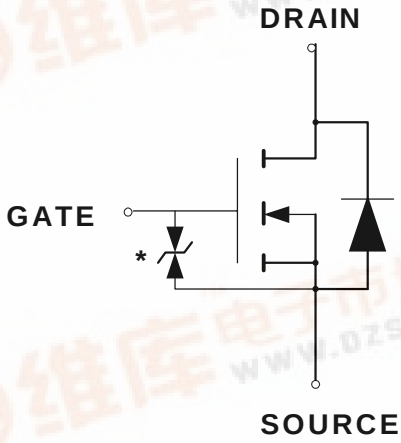
- Low Qg
- Low on-resistance
- Excellent resistance to damage from static electricity

PIN CONFIGURATION

8-PIN SOP (S08)
Top View



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℃)

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

* Pw≦10ms, Duty cycle≦1%

THERMAL RESISTANCE (T_a = 25℃)

Parameter	Symbol	Limits	Unit
Channel to Ambient	Rth(ch-A)	62.5	℃/W

ELECTRICAL CHARACTERISTICS

Unless otherwise specified, T_a = 25℃.

			CMT4410			
Characteristic		**Symbol**	**Min**	**Typ**	**Max**	**Units**
Drain-Source Breakdown Voltage (V_{GS} = 0 V, I_D = 1mA)		$V_{(BR)DSS}$	30			V
Zero Gate Voltage Drain Current (V_{DS} = 30 V, V_{GS} = 0 V)		I_{DSS}			10	μA
Gate-Source Leakage Current (V_{gs} = ±20 V, V_{DS} = 0 V)		I_{GSS}			±10	μA
Gate Threshold Voltage (V_{DS} =10V, I_D = 1mA)		$V_{GS(th)}$	1.0		2.5	V
Static Drain-Source On-Resistance		$R_{DS(on)}$				mΩ
(V_{GS} = 10 V, I_D = 10A)				9	12	
(V_{GS} = 4.5 V, I_D = 10A)				13	18	
(V_{GS} = 4.0 V, I_D = 10A)				15	20	
Forward Transfer Admittance (V_{DS} = 10V, I_D = 10A) *		$\|Y_{FS}\|$	10			mhos
Input Capacitance	(V_{DS} = 10 V, f = 1MHz, V_{GS} = 0 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 V, I_D = 5 A, V_{GS} = 10 V, R_L = 3Ω, R_{GS} = 10Ω) *	$t_{d(on)}$		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 = 2.3A, di/dt = 100A/μs	t_{fr}		50	80	ns
Total Gate Charge	(V_{DD} = 15 V, I_D = 10 A, V_{GS} = 10 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℃.

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

TYPICAL ELECTRICAL CHARACTERISTICS

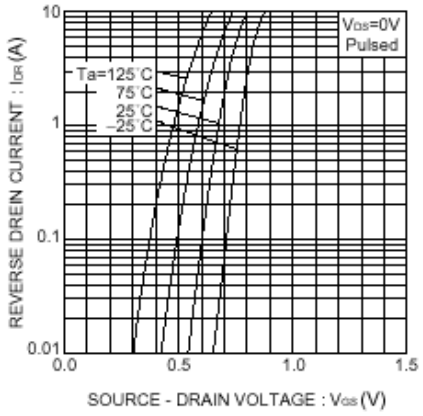


Fig.1 Reverse Drein Current vs. Source - Drain Voltage

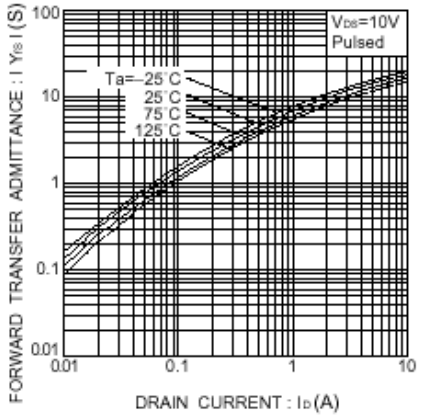


Fig.2 Forward Transfer Admittance vs. Drain Current

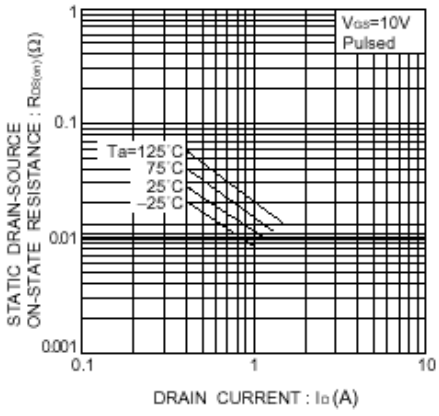


Fig.3 Static Drain-Source On-State Resistance vs. Drain Current (Ⅰ)

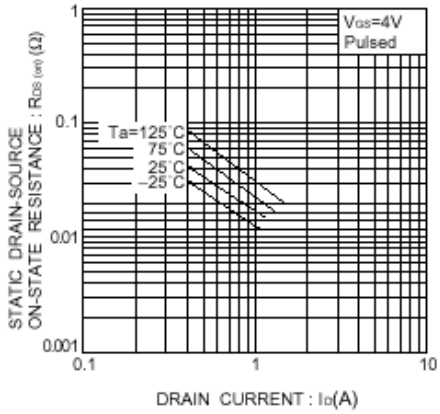


Fig.4 Static Drain-Source On-State Resistance vs. Drain Current (Ⅱ)

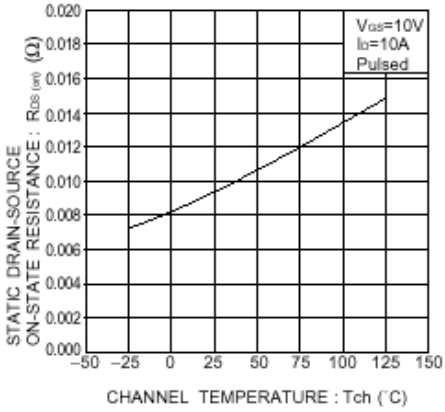


Fig.5 Static Drain-Source On-State Resistance vs. Channel Temperature

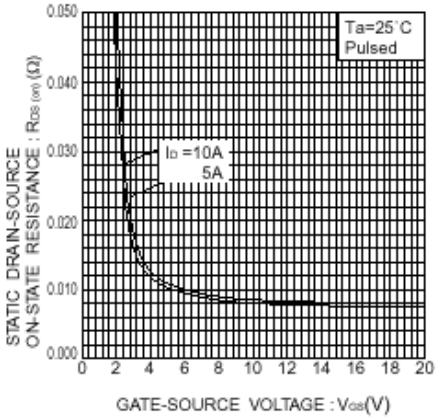


Fig.6 Static Drain-Source On-State Resistance vs. Gate-Source Voltage

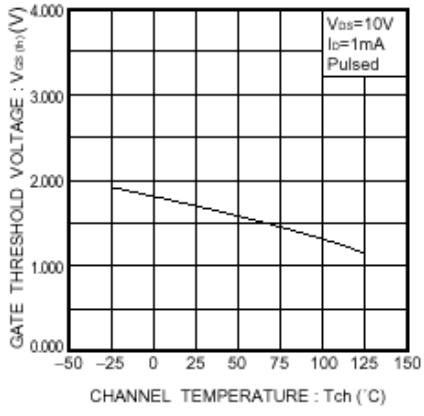


Fig.7 Gate Threshold Voltage vs. Channel Temperature

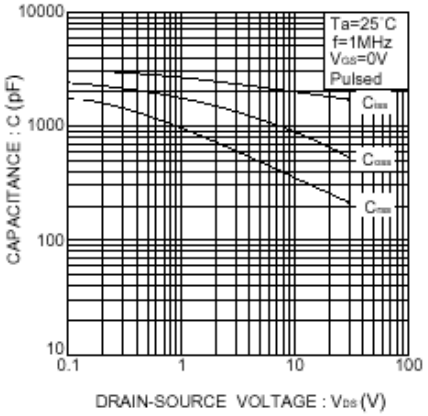


Fig.8 Typical Capacitance vs. Drain-Source Voltage

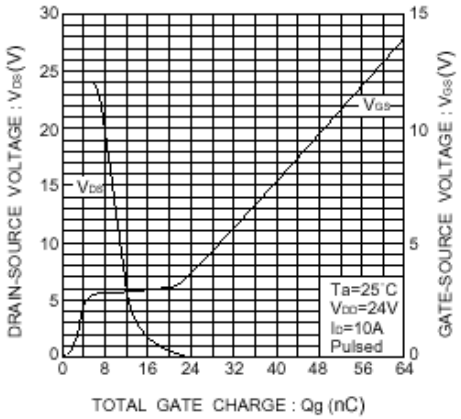


Fig.9 Dynamic Input Characteristics

TYPICAL ELECTRICAL CHARACTERISTICS (Conti.)

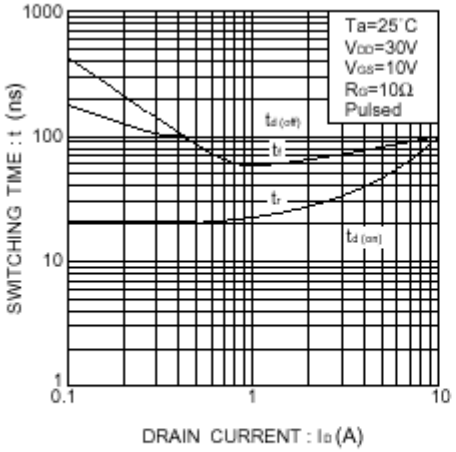


Fig.10 Switching Characteristics

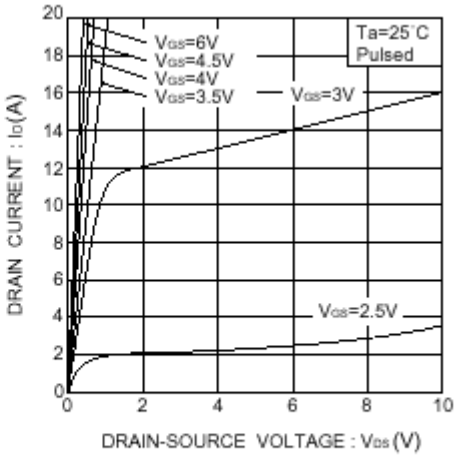


Fig.11 Typical Output Characteristics

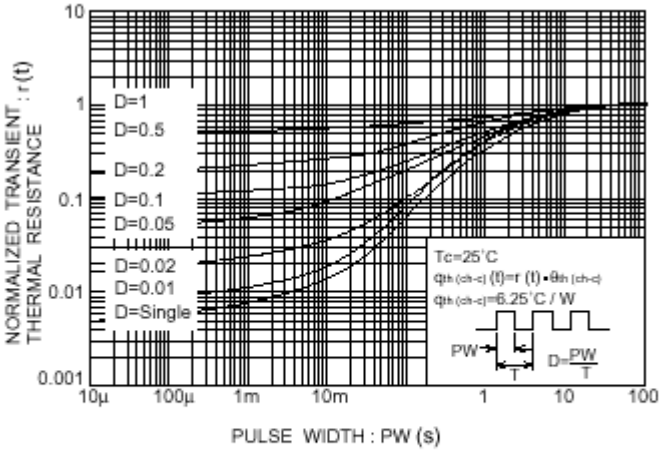
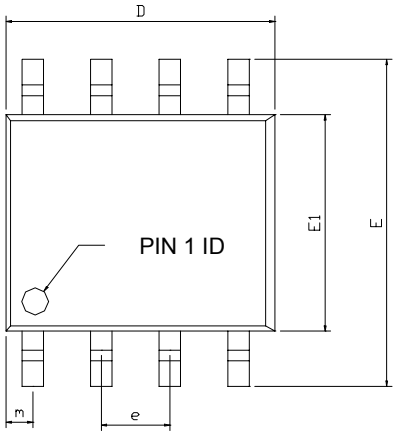


Fig.12 Normalized Transient Thermal Resistance vs. Pulse Width

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°

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