

Description

Features

- Trench LV MOSFET technology
- Fast switching
- Low gate charge

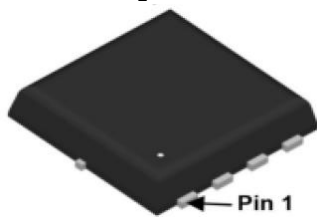
Application

- Load Switch
- PWM Application
- Battery Management

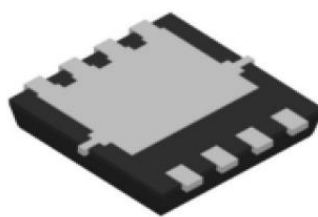
V_{DS}	40	V
$R_{ds(on),typ}@V_{gs}=10V$	5.7	m Ω
$R_{ds(on),typ}@V_{gs}=4.5V$	8	m Ω
I_D	75	A



Top View

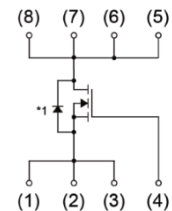


Bottom View



PDFN5*6 Pin Configuration

- (1) Source
 - (2) Source
 - (3) Source
 - (4) Gate
 - (5) Drain
 - (6) Drain
 - (7) Drain
 - (8) Drain
- *1 Body Diode



Package Marking and Ordering Information

Part	Marking	Package	Packing	Reel Size	Tape Width	Qty
CMT4080M	T4080M	PDFN5*6	Reel	NA	NA	5000pcs

Key Performance Parameters

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	40	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_c=25^\circ C$	Continuous Drain Current, $V_{GS}=10V$	75	A
$I_D@T_c=100^\circ C$	Continuous Drain Current, $V_{GS}=10V$	42	A
I_{DM}	Pulsed Drain Current	225	A
EAS	Single Pulse Avalanche Energy	70	mJ
$PD@T_c=25^\circ C$	Total Power Dissipation	48	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ C$
T_j	Operating Junction Temperature Range	-55 to 150	$^\circ C$

Thermal Data

Symbol	Parameter	Typ	Max	Units
R _{θJA}	Thermal Resistance Junction-Ambient	39.7	45	°C/W
R _{θJC}	Thermal Resistance Junction-Case	2.3	2.58	°C/W

Electrical Characteristics (T_J=25 °C, unless otherwise noted)

Symbol	Parameter	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
BVDSS	Drain-Source Breakdown Voltage	40	--	--	V	VGS=0V, ID=250uA
RDS(ON)	Static Drain-Source On-Resistance	--	5.7	7.5	mΩ	VGS=10V, ID=20A
		--	8	10.0		VGS=4.5V, ID=10A
VGS(th)	Gate Threshold Voltage	1.0	1.6	2.5	V	VGS=VDS, ID=250uA
IDSS	Drain-Source Leakage Current	--	--	1	uA	VDS=40V, VGS=0V, TJ=25°C
		--	--	10	uA	VDS=32V, VGS=0V, TJ=125°C
IGSS	Gate-Source Leakage Current	--	--	±100	nA	VGS=±20V, VDS=0V
Rg	Gate Resistance	--	1.7	--	Ω	VDS=0V, VGS=0V, f=1MHz
Qg	Total Gate Charge (10V)	--	47	--	nC	VDS=20V, VGS=10V, ID=30A
Qgs	Gate-Source Charge	--	8	--		
Qgd	Gate-Drain Charge	--	12	--		
Td(on)	Turn-On Delay Time	--	13	--	ns	VDD=20V, VGS=10V, RG=1Ω ID=30A
Tr	Rise Tim	--	74	--		
Td(off)	Turn-Off Delay Time	--	46	--		
Tf	Fall Time	--	98	--	pF	VDS=20V, VGS=0V, f=1MHz
Ciss	Input Capacitance	--	2346	--		
Coss	Output Capacitance	--	164	--		
Crss	Reverse Transfer Capacitance	--	124	--		

Diode Characteristics

Symbol	Parameter	Conditions	Typ	Max	Units
Is	Continuous Source Current	VG=VD=0V, Force Current	--	75	A
Ism	Pulsed Source Current		--	225	A
VSD	Diode Forward Voltage	VGS=0V, Is=5A, TJ=25°C	--	1.1	V

Note:

1. Repetitive Rating: Pulsed width limited by maximum junction temperature.
2. The data tested by pulsed, pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
3. Essentially independent of operating temperature.
4. The EAS data shows Max. rating. The test condition is VDD=20V, VGS=10V, L=0.5mH.

Typical Performance Characteristics

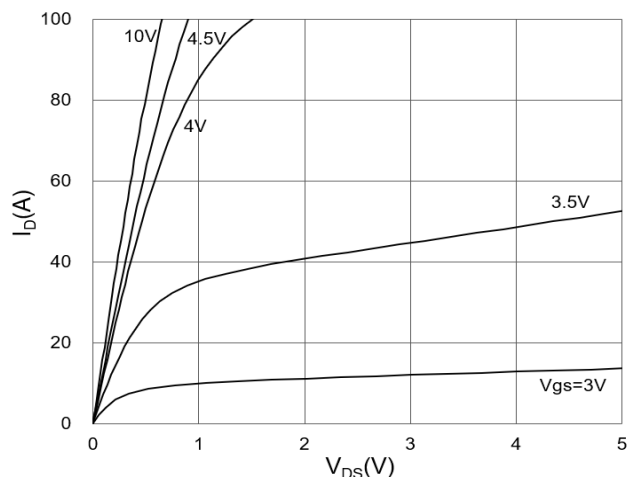
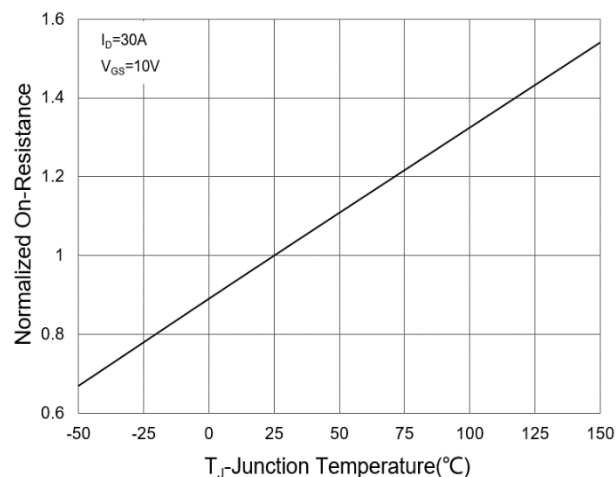
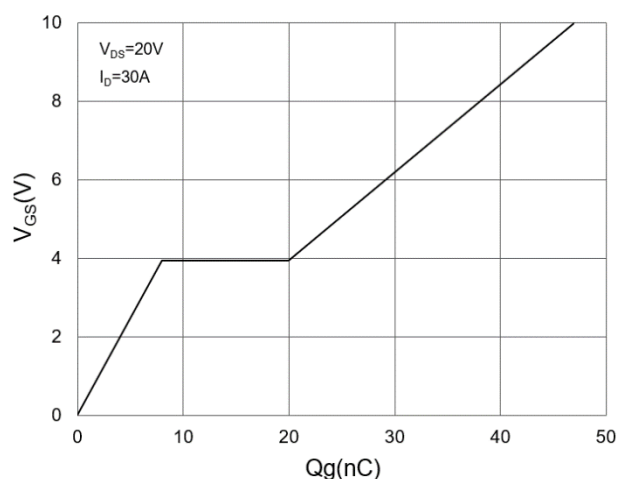
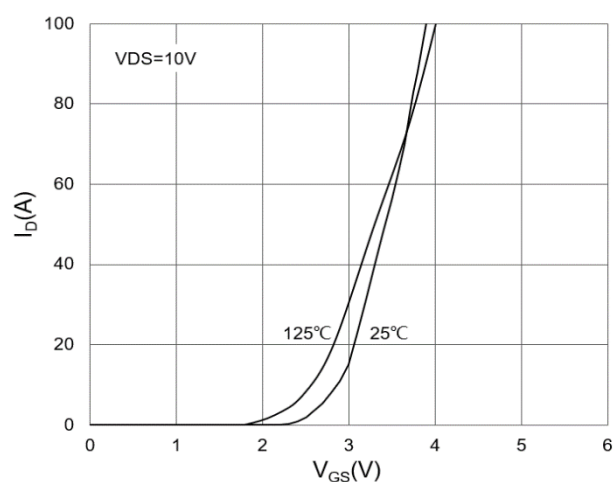
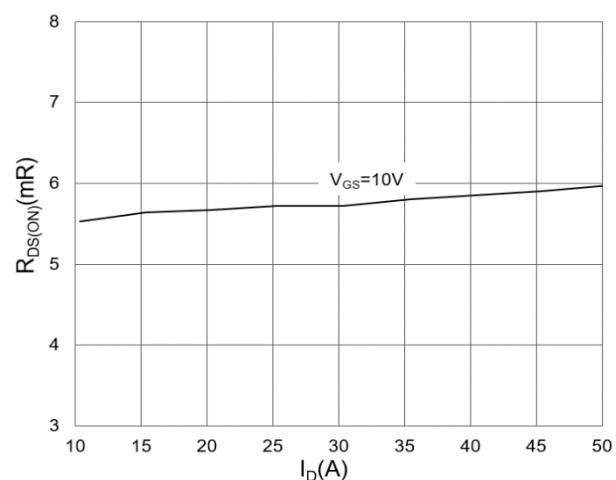
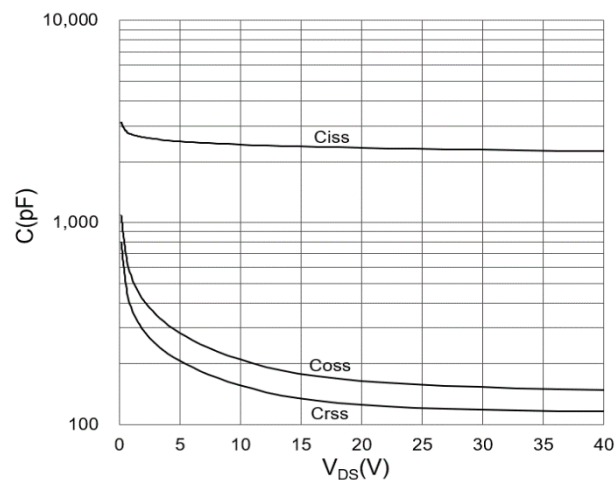
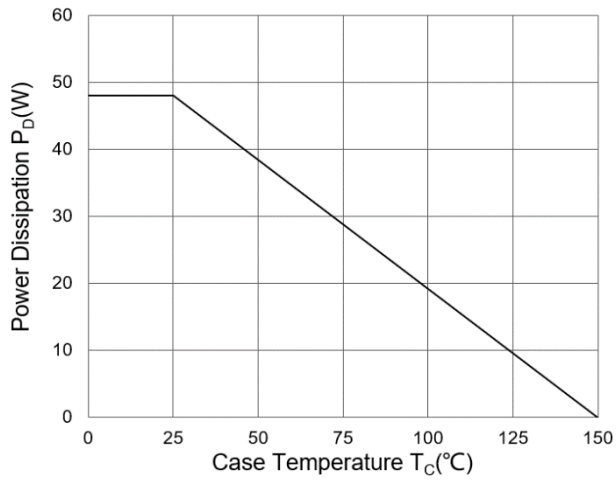
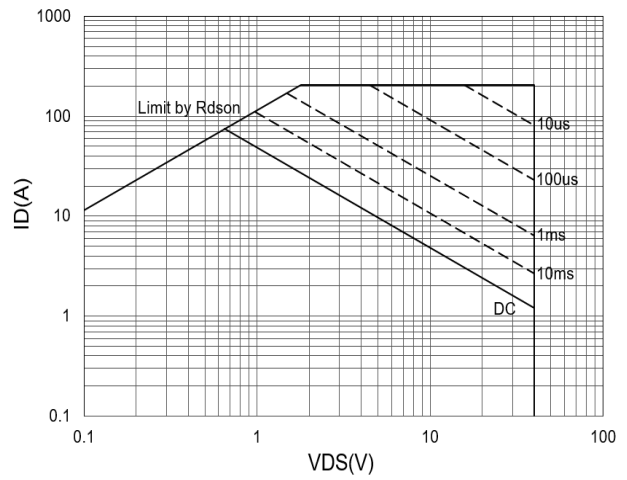
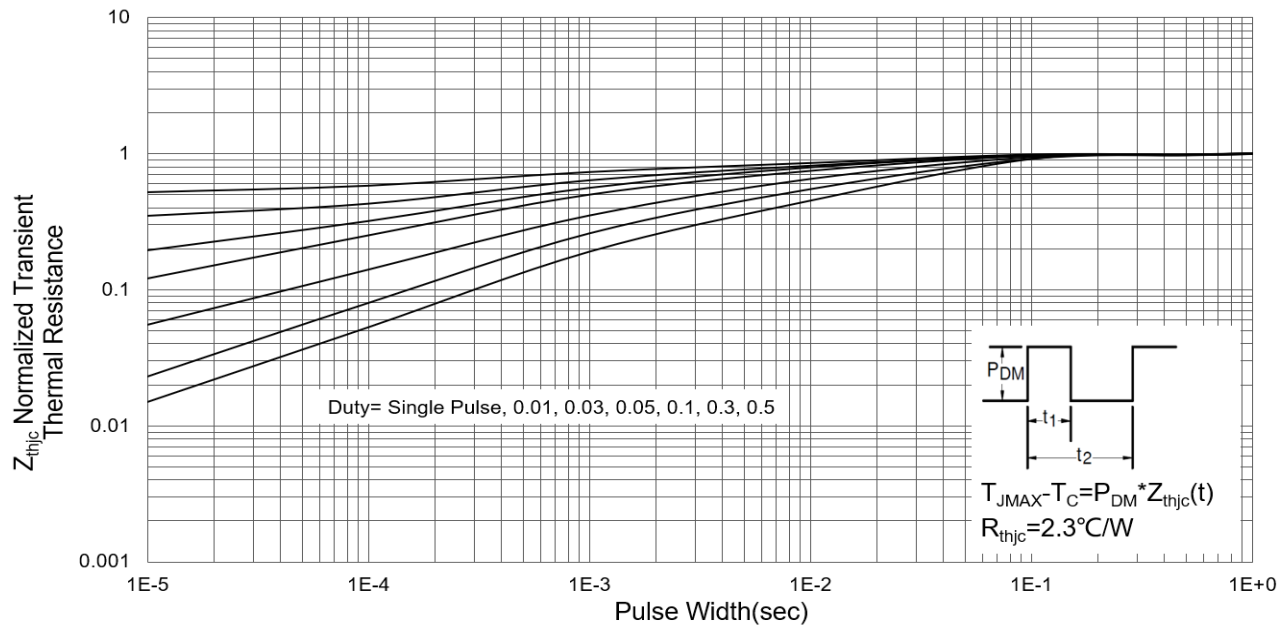
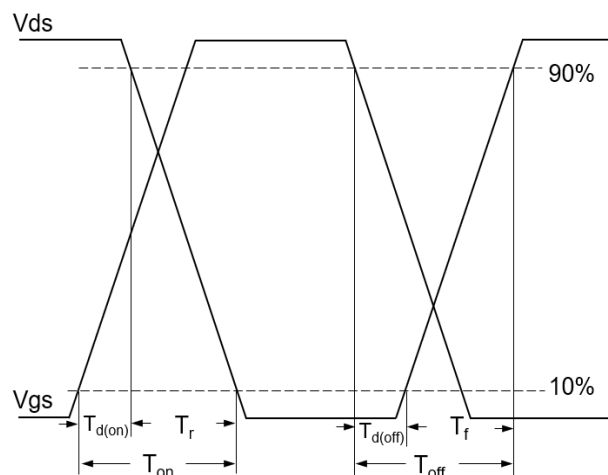
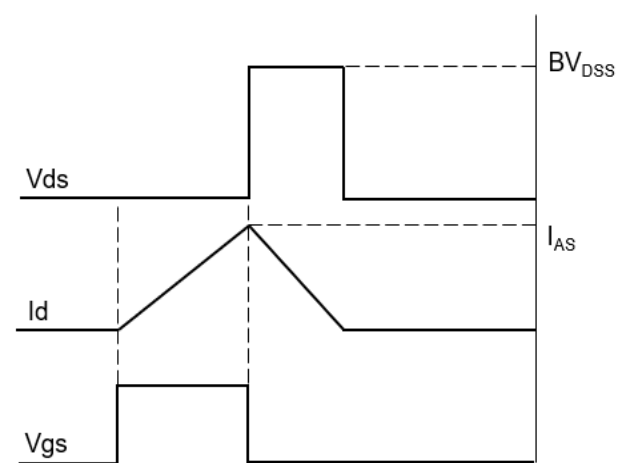
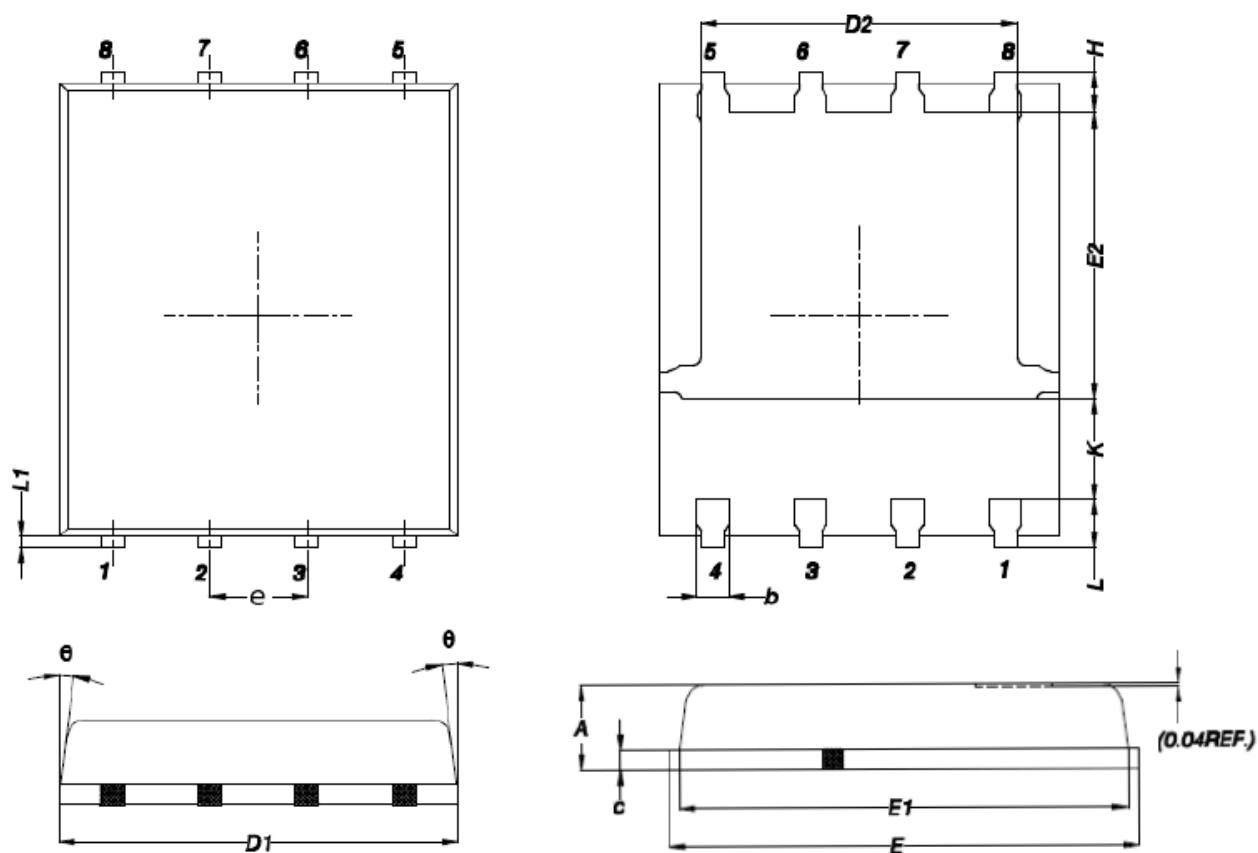
Fig1 Output Characteristics

Fig2 Normalized $R_{DS(on)}$ vs T_J

Fig3 Gate Charge Waveform

Fig4 Transfer Characteristics

Fig5 $R_{DS(on)}$ vs. Drain Current and Gate Voltage

Fig6 Capacitance Characteristics


Fig7 Power Dissipation

Fig8 Maximum Safe Operation Area

Fig9 Normalized Transient Impedance

Fig10 Switching Time Waveform

Fig11 EAS Waveform


PDFN5*6 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MAX	MIN	MAX	MIN
A	1.200	0.850	0.047	0.031
b	0.510	0.330	0.020	0.013
C	0.300	0.200	0.012	0.008
D1	5.400	4.800	0.212	0.189
D2	4.310	3.610	0.170	0.142
E	6.300	5.850	0.248	0.230
E1	5.960	5.450	0.235	0.215
E2	3.920	3.300	0.154	0.130
e	1.27BSC		0.05BSC	
H	0.650	0.380	0.026	0.015
K	---	1.100	---	0.043
L	0.710	0.380	0.028	0.015
L1	0.250	0.050	0.009	0.002
θ	12°	0°	12°	0°