

General Description

The CMSL008N06 uses advanced Super Trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. It can be used in a wide variety of applications.

Features

- Surface-mounted package
- Advanced trench cell design
- Super Trench
- RoHS Compliant

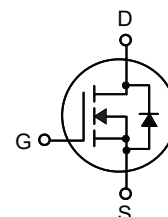
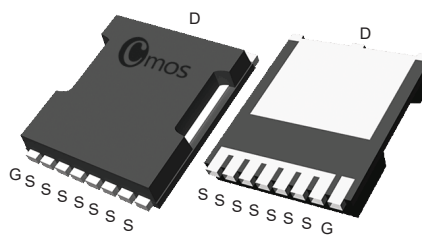
Product Summary

BVDSS	RDSON	ID
60V	0.8mΩ	400A

Applications

- LCD TV appliances
- LCDM appliances
- High power inverter system

TOLL-8L Pin Configuration



TOLL-8
CMSL008N06

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_C=25^\circ\text{C}$	Continuous Drain Current(DC) ^{1,2}	400	A
$I_D@T_C=100^\circ\text{C}$	Continuous Drain Current(DC) ^{1,2}	289	A
I_{DM}	Pulsed Drain Current ¹	1600	A
EAS	Single Pulse Avalanche Energy ³	1250	mJ
$P_D@T_C=25^\circ\text{C}$	Total Power Dissipation	300	W
T_{STG}	Storage Temperature Range	-55 to 175	$^\circ\text{C}$
T_J	Operating Junction Temperature Range	175	$^\circ\text{C}$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient ⁴	---	40	$^\circ\text{C}/\text{W}$
$R_{\theta JC}$	Thermal Resistance Junction -Case ⁴	---	0.5	$^\circ\text{C}/\text{W}$

Electrical Characteristics ($T_J=25^{\circ}\text{C}$, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	60	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=50A$	---	0.73	0.8	$m\Omega$
		$V_{GS}=4.5V$, $I_D=30A$	---	0.93	1.1	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	1	---	2.5	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=48V$, $V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
Q_g	Total Gate Charge	$V_{DS}=30V$, $I_D=50A$ $V_{GS}=10V$ (Note 5)	---	150	---	nC
Q_{gs}	Gate-Source Charge		---	23	---	
Q_{gd}	Gate-Drain Charge		---	33	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=30V$, $V_{GEN}=10V$, $R_G=3.9\Omega$ $R_L=0.6\Omega$, $I_{DS}=50A$ (Note 5)	---	16	---	ns
T_r	Rise Time		---	56	---	
$T_{d(off)}$	Turn-Off Delay Time		---	150	---	
T_f	Fall Time		---	100	---	
C_{iss}	Input Capacitance	$V_{DS}=30V$, $V_{GS}=0V$, $f=1MHz$ (Note 5)	---	7200	---	pF
C_{oss}	Output Capacitance		---	2000	---	
C_{rss}	Reverse Transfer Capacitance		---	115	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Diode continuous forward current	$V_G=V_D=0V$, Force Current	---	---	400	A
$I_{S,pulse}$	Diode pulse current		---	---	1600	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=50A$, $T_J=25^{\circ}\text{C}$	---	---	1.3	V

Notes:

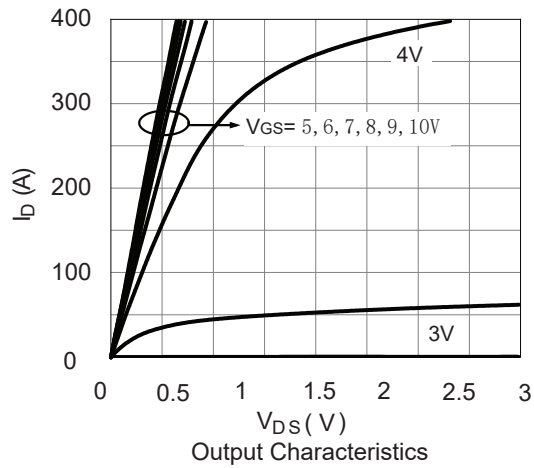
1. Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
2. Limited by bonding wire.
3. The EAS data shows Max. rating . The test condition is $V_{DD}=50V$, $V_{GS}=10V$, $L=1mH$, $I_{AS}=50A$.
4. Surface Mounted on minimum footprint pad area.
5. Guaranteed by design, not subject to production testing.

This product has been designed and qualified for the consumer market.

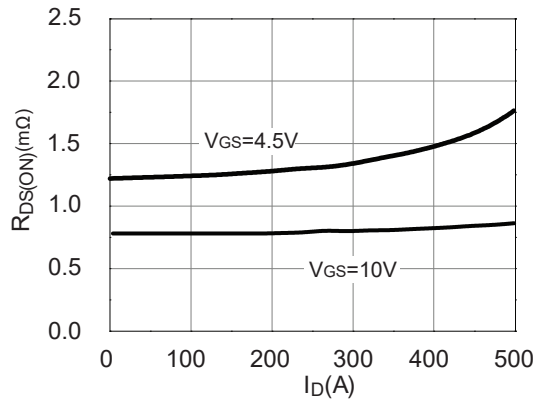
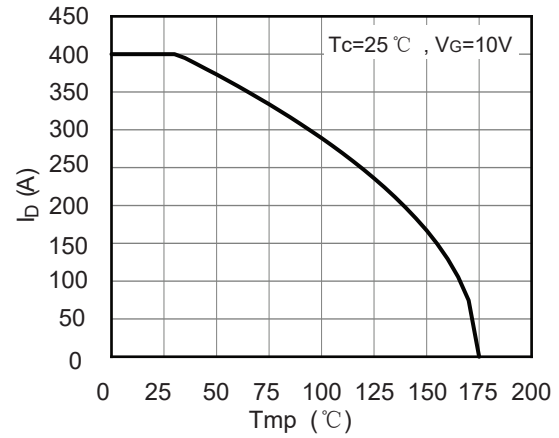
Cmos assumes no liability for customers' product design or applications.

Cmos reserves the right to improve product design ,functions and reliability without notice.

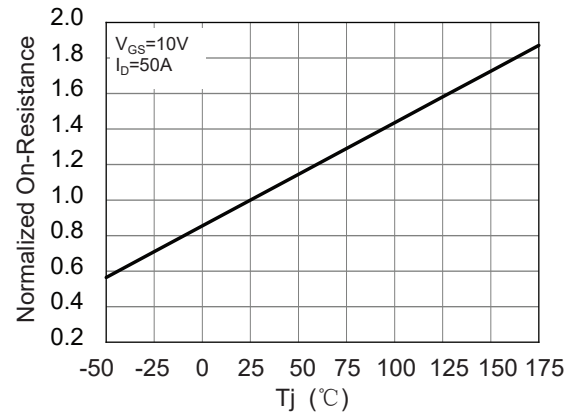
Typical Characteristics



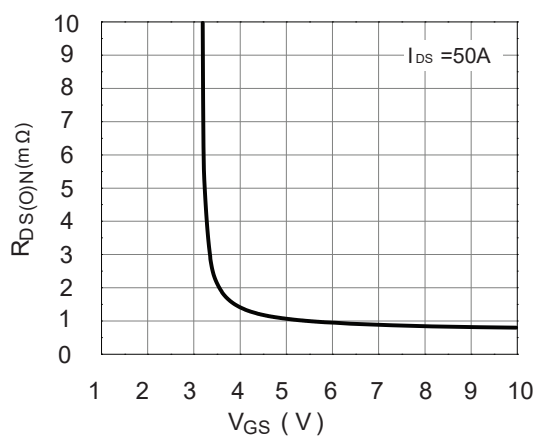
Output Characteristics



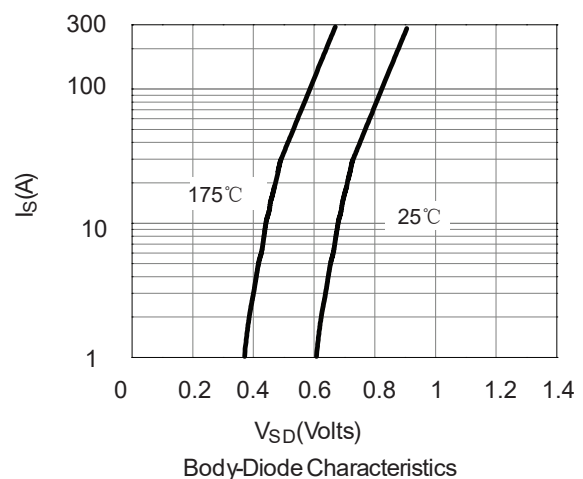
On-Resistance vs. Drain Current and Gate Voltage



On-Resistance vs. Junction Temperature

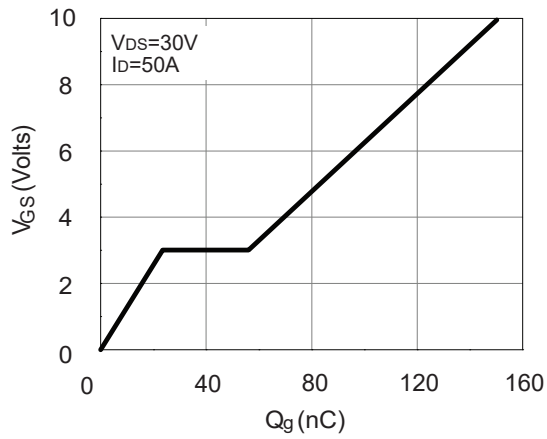


On-Resistance vs. Gate-Source Voltage

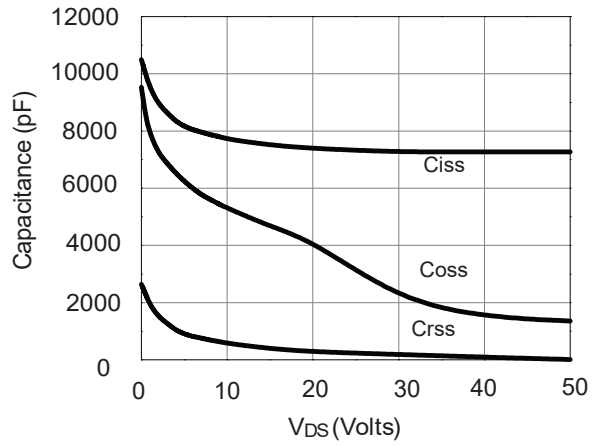


Body-Diode Characteristics

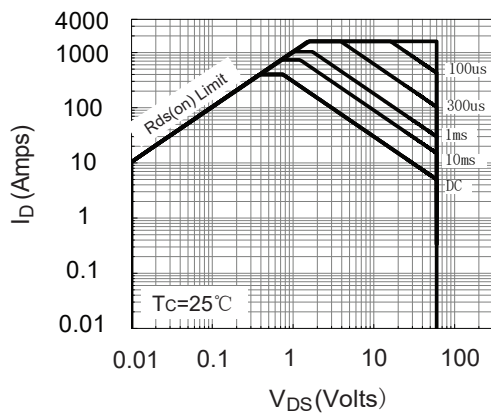
Typical Characteristics



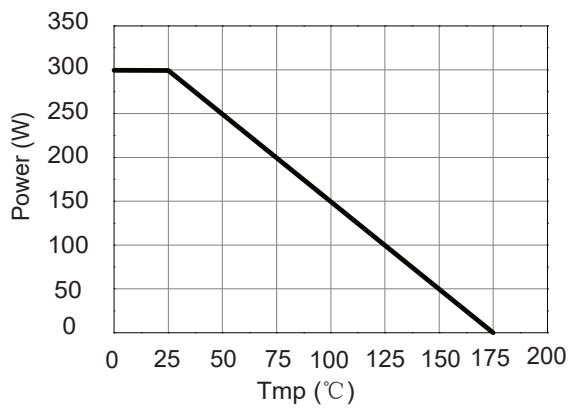
Gate-Charge Characteristics



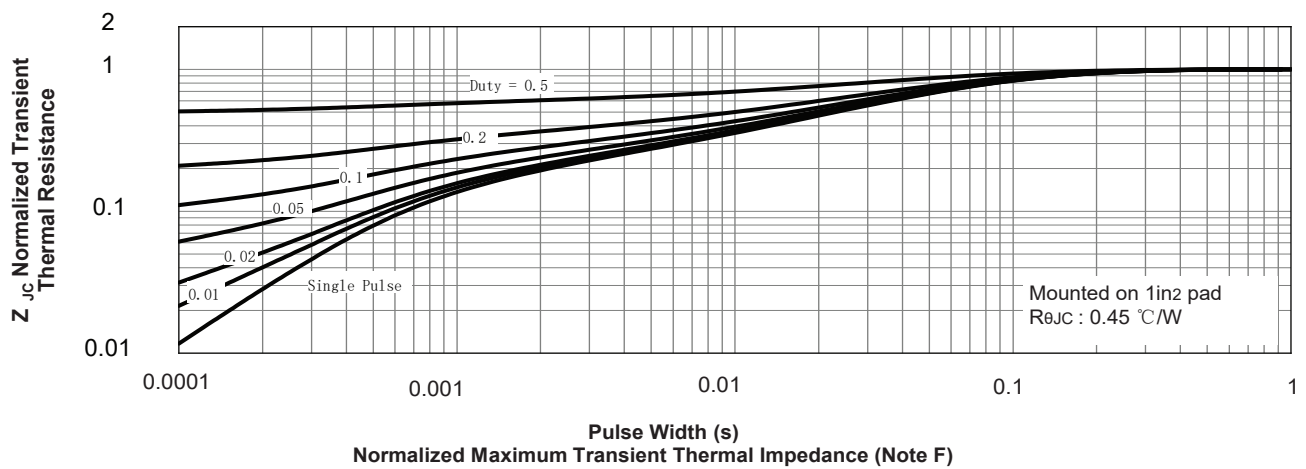
Capacitance Characteristics



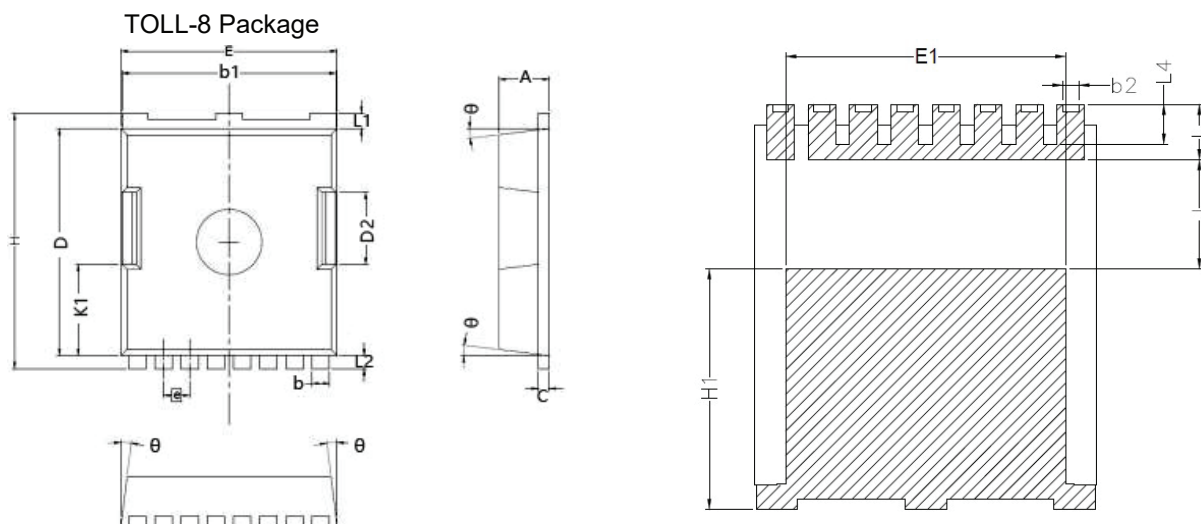
Safe Operating Area



Power Capability



Package Dimensions



Symbol	Dimensions In Millimeters	
	MIN.	MAX.
A	2.20	2.40
b	0.70	0.90
b1	9.70	9.90
b2	0.42	0.50
c	0.40	0.60
D	10.28	10.58
D2	3.10	3.50
E	9.70	10.10
E1	7.90	8.30
e	1.20BSC	
H	11.48	11.88
H1	6.75	7.15
N	8	
J	3.00	3.30
K1	3.98	4.38
L	1.40	1.80
L1	0.60	0.80
L2	0.50	0.70
L4	1.00	1.30
θ	4°	10°