CMSL018N10

100V N-Channel MOSFET

General Description

The CMSL018N10 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.

Product Summary

BVDSS	RDSON	ID
100V	1.8mΩ	292A

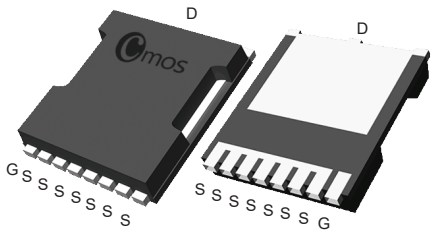
Applications

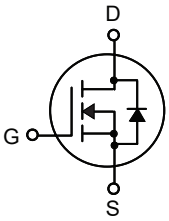
- LCD TV appliances
- LCDM appliances
- High power inverter system

Features

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

TOLL-8L Pin Configuration





TOLL-8
CMSL018N10

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	100	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_C=25℃	Continuous Drain Current (DC) [1,2]	292	A
I_{DM}	Pulsed Drain Current (Pulsed) [1,2,3]	1168	A
EAS	Single Pulse Avalanche Energy [1,4]	1225	mJ
P_D@T_C=25℃	Total Power Dissipation	312	W
T_{STG}	Storage Temperature Range	-55 to 175	℃
T_J	Operating Junction Temperature Range	-55 to 175	℃

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient [1]	---	45	℃/W
$R_{\theta JC}$	Thermal Resistance Junction -Case [1]	---	0.3	℃/W

Electrical Characteristics (T_J=25℃ , unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=250uA	100	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V , I_D=50A (Note 3)	---	1.6	1.8	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250μA	2	---	4	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=80V , V_{GS}=0V	---	---	1	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS} = ±20V , V_{DS}=0V	---	---	±100	nA
Q_g	Total Gate Charge	V_{DS}=50V , I_D=50A V_{GS}=10 V (Note 5)	---	168	---	nC
Q_{gs}	Gate-Source Charge		---	59	---	
Q_{gd}	Gate-Drain Charge		---	35	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DS}=50V , V_{GS}=10V , R_G =3.9Ω R_L=1Ω , I_{DS}=50A (Note 5)	---	59	---	ns
T_r	Rise Time		---	66	---	
$T_{d(off)}$	Turn-Off Delay Time		---	185	---	
T_f	Fall Time		---	95	---	
C_{iss}	Input Capacitance	V_{DS}=50V , V_{GS}=0V , f=1MHz (Note 5)	---	11100	---	pF
C_{oss}	Output Capacitance		---	2800	---	
C_{rss}	Reverse Transfer Capacitance		---	530	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Diode continuous forward current	V_G=V_D=0V , Force Current	---	---	292	A
$I_{S,pulse}$	Diode pulse current		---	---	1168	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_s=50A , Tj=25℃	---	---	1.3	V

Notes:

1.Surface Mounted on 1 in2 pad area, t ≤ 10 sec.

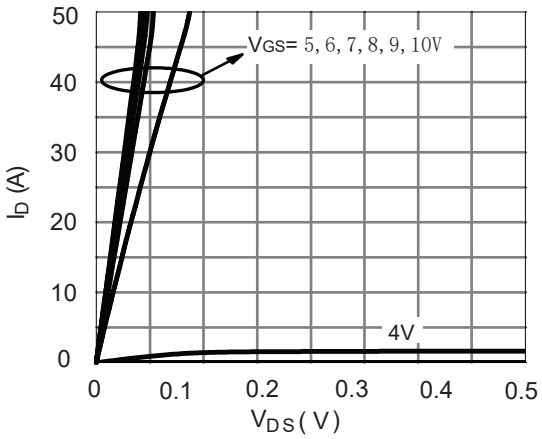
2.Limited by bonding wire.

3.Pulse width ≤300μs, duty cycle ≤2%.

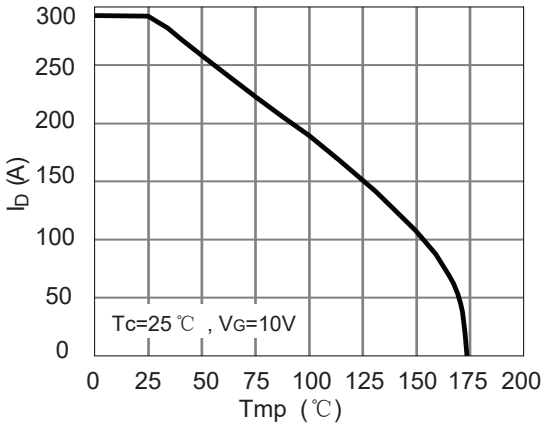
4.The EAS data shows Max. rating . The test condition is V_{DD}=50V , V_{GS}=10V , L=1mH , I_{AS}=49.5A.

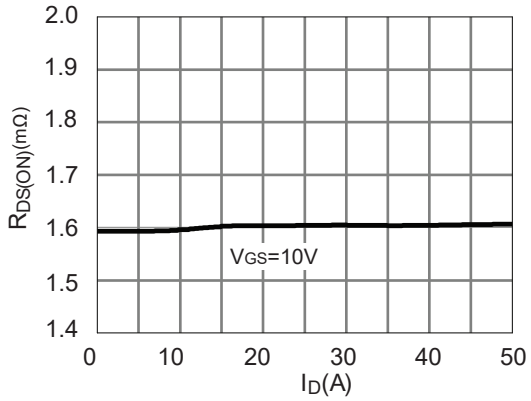
5.Guaranteed by design, not subject to production testing.

Typical Characteristics

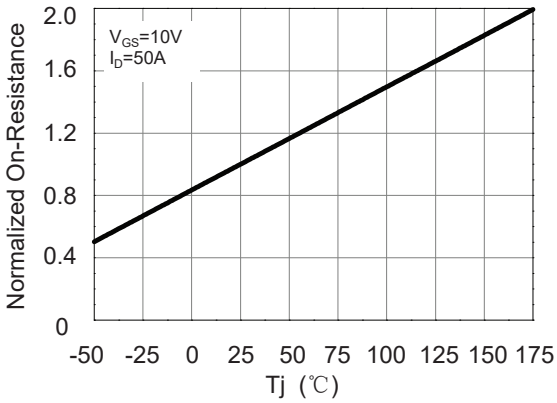


Output Characteristics

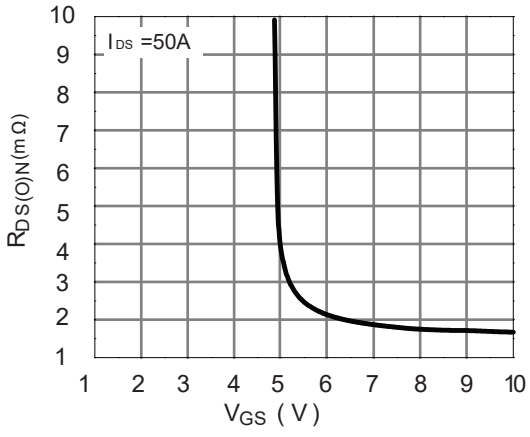




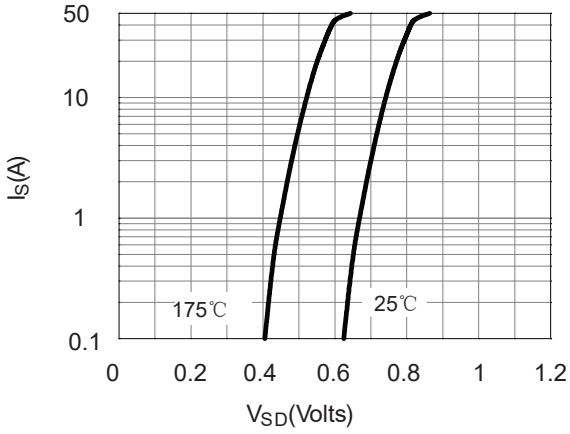
On-Resistance vs. Drain Current and Gate Voltage



On-Resistance vs. Junction Temperature

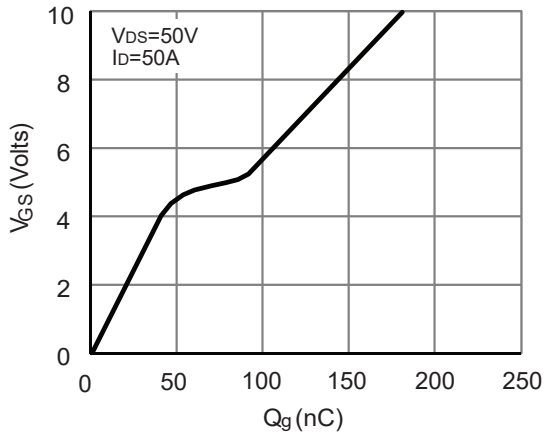


On-Resistance vs. Gate-Source Voltage

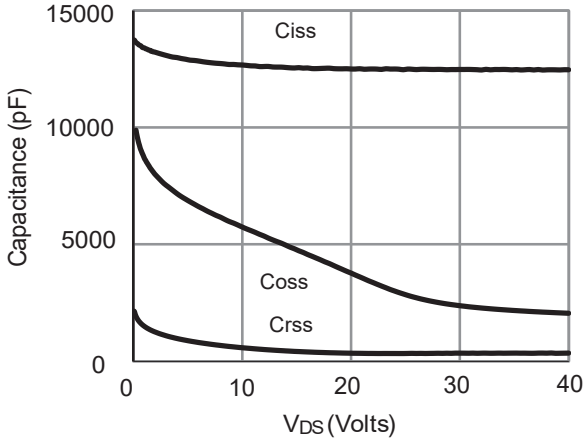


Body-Diode Characteristics

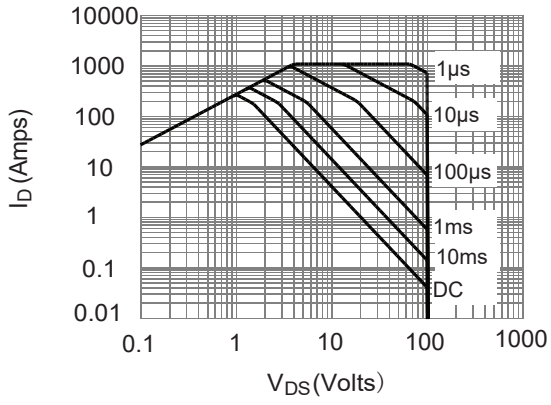
Typical Characteristics



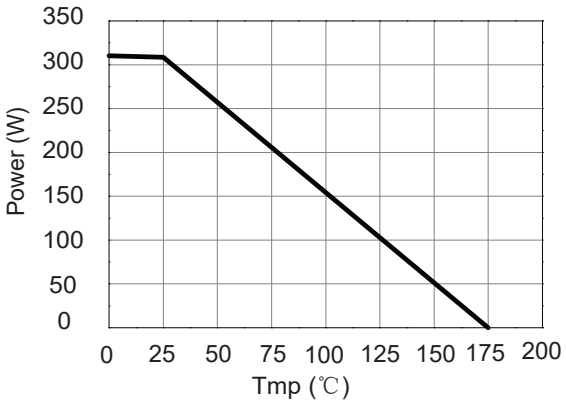
Gate-Charge Characteristics



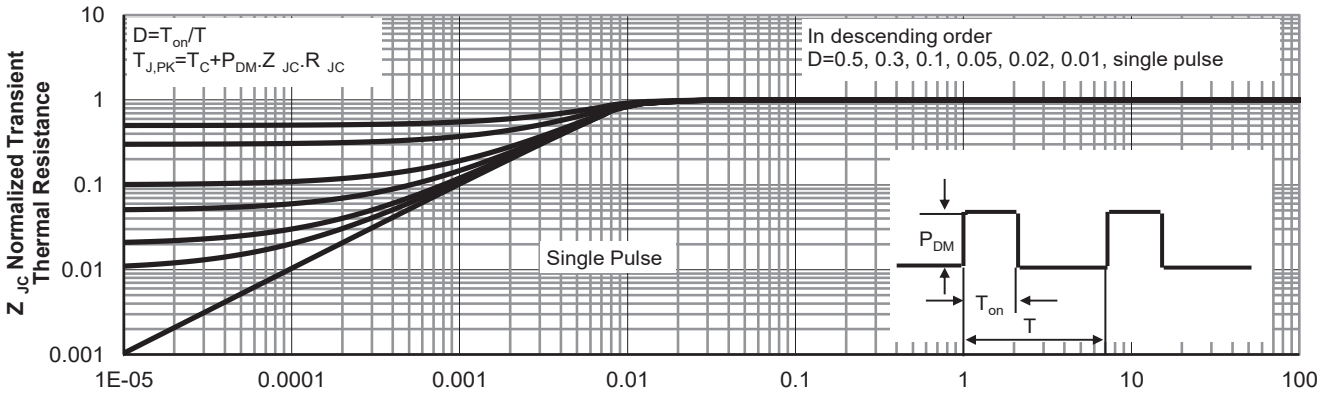
Capacitance Characteristics



Safe Operating Area



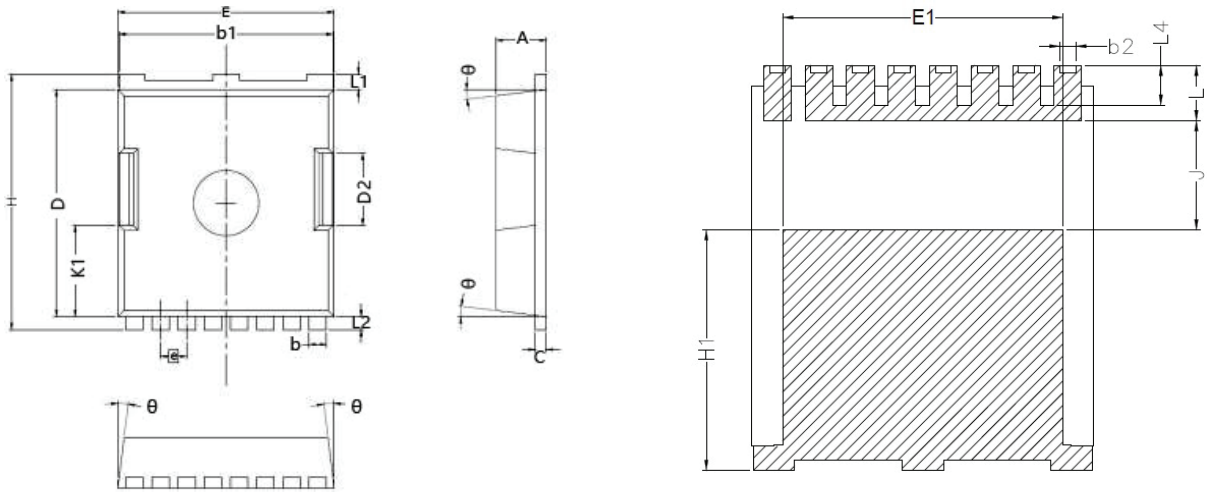
Power Capability



Pulse Width (s)
Normalized Maximum Transient Thermal Impedance (Note F)

Package Dimensions

TOLL-8 Package



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°