

General Description

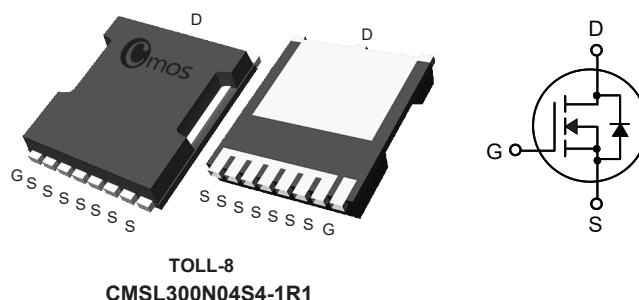
Product Summary

BVDSS	R _{DS(on)} max.	ID
40V	1mΩ	400A

Features

- Surface-mounted package
- Advanced trench cell design
- Super Trench
- MSL1

TOLL-8 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	40	V
V _{GS}	Gate-Source Voltage	±20	V
I _D @T _C =25°C	Continuous Drain Current (DC) ^{1,2}	400	A
I _{DM}	Pulsed Drain Current (Pulsed) ^{2,3}	1600	A
EAS	Single Pulse Avalanche Energy ⁴	1352	mJ
P _D @T _C =25°C	Total Power Dissipation	600	W
T _{STG}	Storage Temperature Range	-55 to 175	°C
T _J	Operating Junction Temperature Range	175	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
R _{θJA}	Thermal Resistance, Junction-to-Ambient ³	---	32.8	°C/W
R _{θJC}	Thermal Resistance Junction -Case ³	---	0.45	°C/W

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	40	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =10V, I _D =29A	---	0.85	1	mΩ
		V _{GS} =4.5V, I _D =20A	---	1.2	1.65	
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250μA	1	---	3	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =32V, 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} =20V, I _D =50A V _{GS} =10 V (Note 5)	---	148	---	nC
Q _{gs}	Gate-Source Charge		---	26	---	
Q _{gd}	Gate-Drain Charge		---	25	---	
T _{d(on)}	Turn-On Delay Time	V _{DS} =20V, V _{GS} =10V, R _G =4.5Ω R _L =0.4Ω, I _{DS} =50A (Note 5)	---	20	---	ns
T _r	Rise Time		---	85	---	
T _{d(off)}	Turn-Off Delay Time		---	150	---	
T _f	Fall Time		---	130	---	
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f=1MHz (Note 5)	---	7100	---	pF
C _{oss}	Output Capacitance		---	1400	---	
C _{rss}	Reverse Transfer Capacitance		---	450	---	

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 =25A, T _J =25°C	---	0.75	1.3	V

Notes:

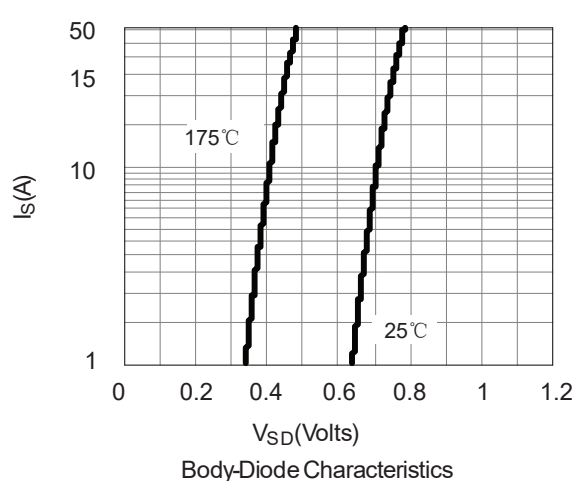
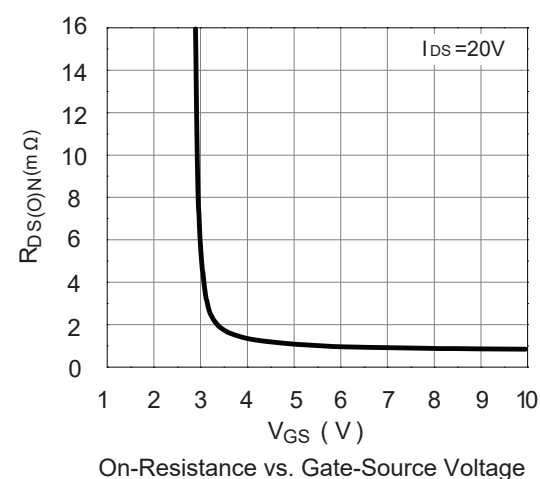
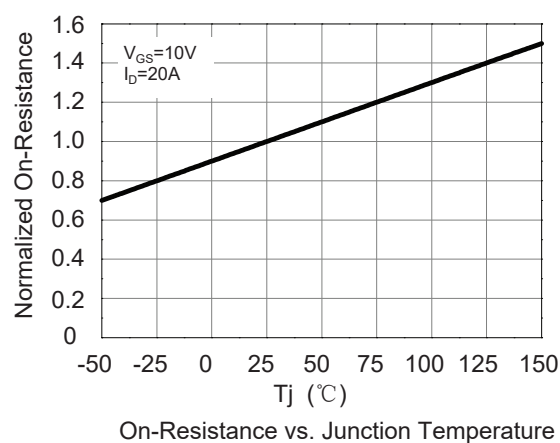
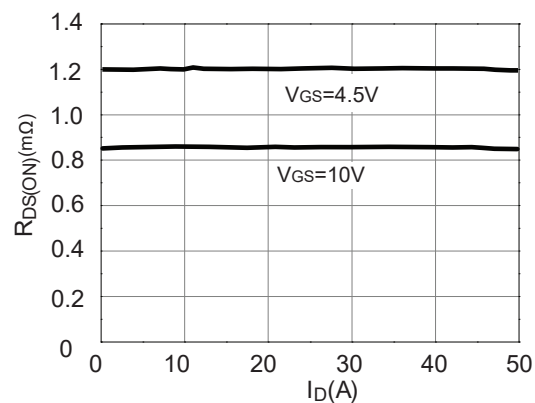
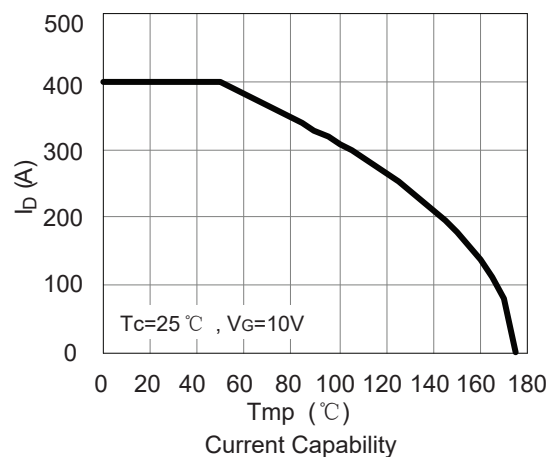
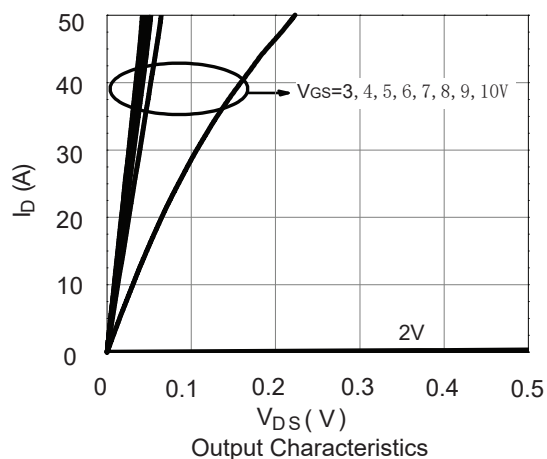
- 1.Surface Mounted on minimum footprint pad area.
- 2.Maximum current rating is package limited.
- 3.Pulse width ≤300μs, duty cycle ≤2%.
- 4.The EAS data shows Max. rating . The test condition is V_{DD}=40V, V_{GS}=10V, L=1mH, I_{AS}=52A.
- 5.Guaranteed by design, not subject to production testing.

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

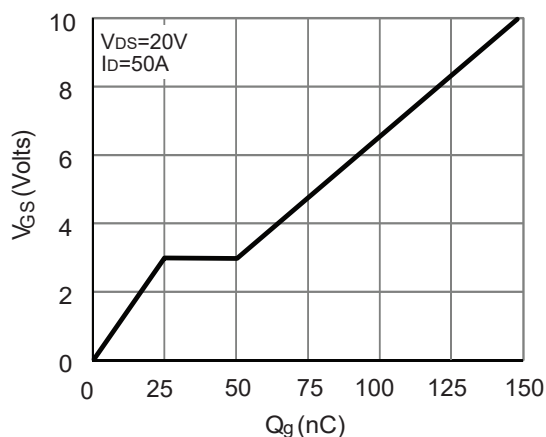
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Cmos reserves the right to improve product design, functions and reliability without notice. Please refer to the latest version of specification.

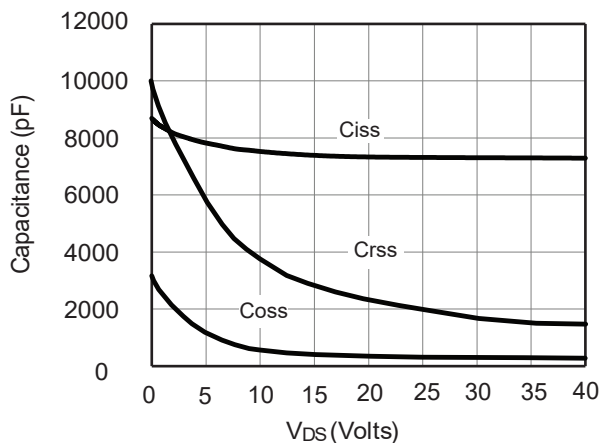
Typical Characteristics



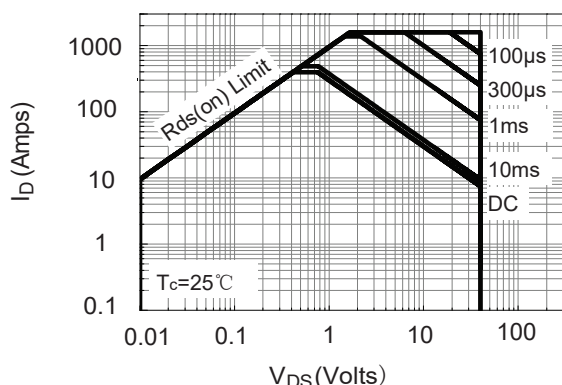
Typical Characteristics



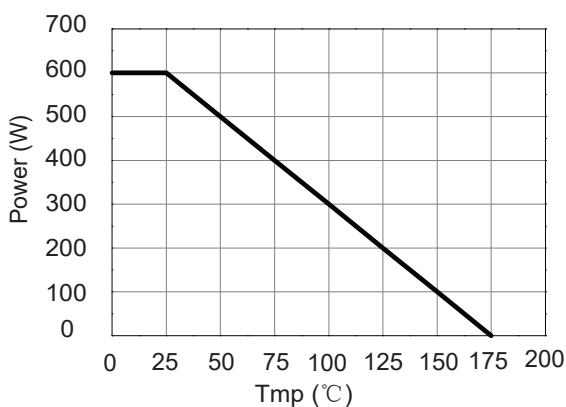
Gate-Charge Characteristics



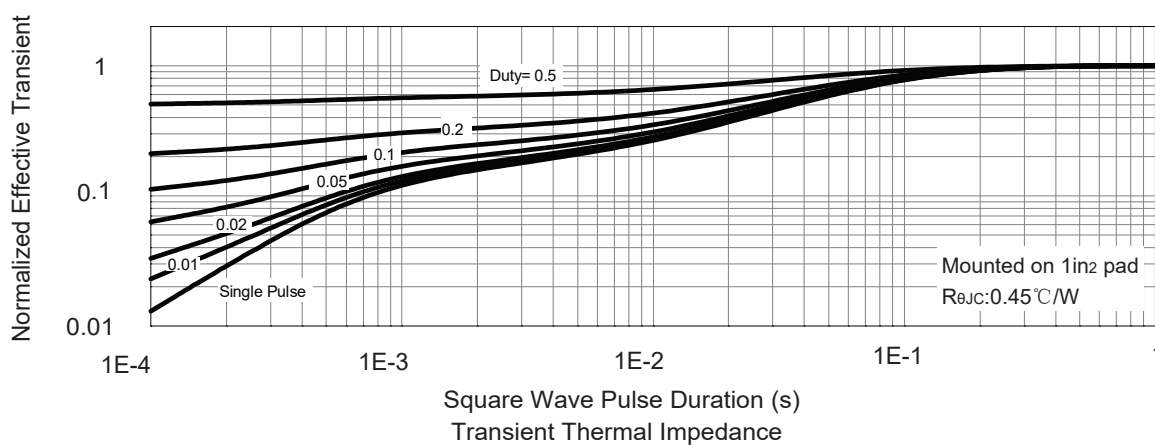
Capacitance Characteristics



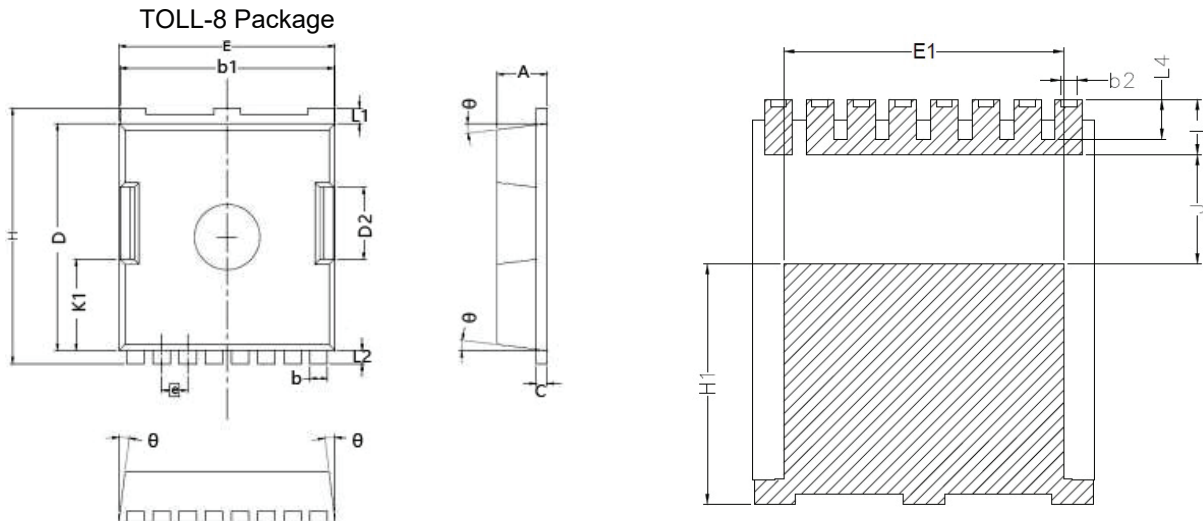
Safe Operating Area



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°