

General Description

The CMSL012N10 uses advanced SGT technology to provide excellent RDS(ON). It can be used in a wide variety of applications.

Features

- Low On-Resistance
- 100% avalanche tested
- Surface Mount Package
- RoHS Compliant

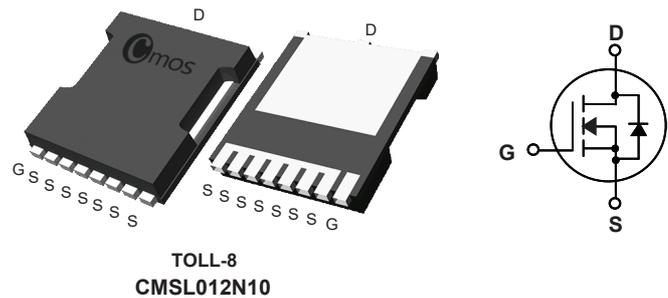
Product Summary

BVDSS	R _{DS(on)} max.	ID
100V	1.4mΩ	450A

Applications

- Motor
- BMS
- Load switch

TOLL-8 Pin Configuration



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°C	Continuous Drain Current	450	A
I _D @T _C =100°C	Continuous Drain Current	290	A
I _{DM}	Pulsed Drain Current	1800	A
EAS	Single Pulse Avalanche Energy ¹	2434	mJ
P _D @T _C =25°C	Total Power Dissipation	500	W
T _{STG}	Storage Temperature Range	-55 to 150	°C
T _J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
R _{θJA}	Thermal Resistance Junction-ambient ²	---	25	°C/W
R _{θJC}	Thermal Resistance Junction-case	---	0.25	°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	100	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =10V , I _D =25A	---	1.2	1.4	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	2.0	---	4.0	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =100V , V _{GS} =0V	---	---	1	uA
I _{GSS}	Gate-Source Leakage Current	V _{GS} = ±20V , V _{DS} =0V	---	---	±100	nA
g _{fs}	Forward Transconductance	V _{DS} =5V , I _D =20A	---	82	---	S
R _g	Gate Resistance	V _{DS} =0V , V _{GS} =0V , f=1MHz	---	1.6	---	Ω
Q _g	Total Gate Charge	I _D =80A	---	184	---	nC
Q _{gs}	Gate-Source Charge	V _{DS} =50V	---	55	---	
Q _{gd}	Gate-Drain Charge	V _{GS} =10V (note 3)	---	43	---	
T _{d(on)}	Turn-On Delay Time	V _{DS} =50V	---	23	---	ns
T _r	Rise Time	V _{GS} =10V	---	57	---	
T _{d(off)}	Turn-Off Delay Time	R _{GEN} = 3Ω	---	84	---	
T _f	Fall Time	I _D =80A (note 3)	---	54	---	
C _{iss}	Input Capacitance	V _{DS} =50V , V _{GS} =0V , f=1MHz	---	12900	---	pF
C _{oss}	Output Capacitance		---	4400	---	
C _{rss}	Reverse Transfer Capacitance		---	150	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current	V _G =V _D =0V , Force Current	---	---	450	A
I _{SM}	Pulsed Source Current		---	---	1800	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V , I _S =20A	---	0.75	1.2	V
t _{rr}	Reverse Recovery Time	I _S = 80A , T _J =25°C	---	90	---	ns
Q _{rr}	Reverse Recovery Charge	di/dt =100A/μs	---	195	---	nC

Note :

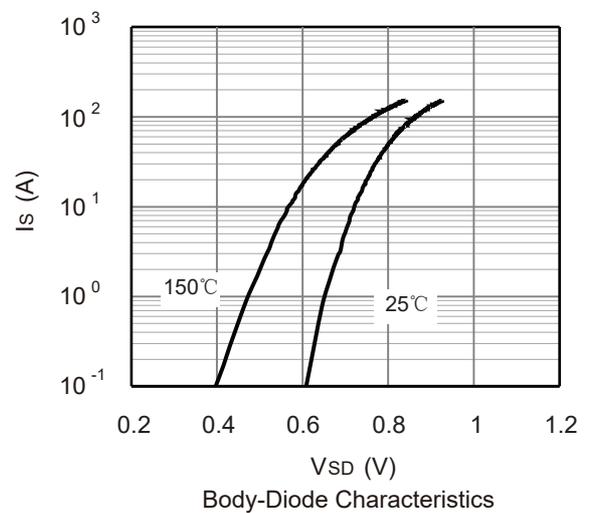
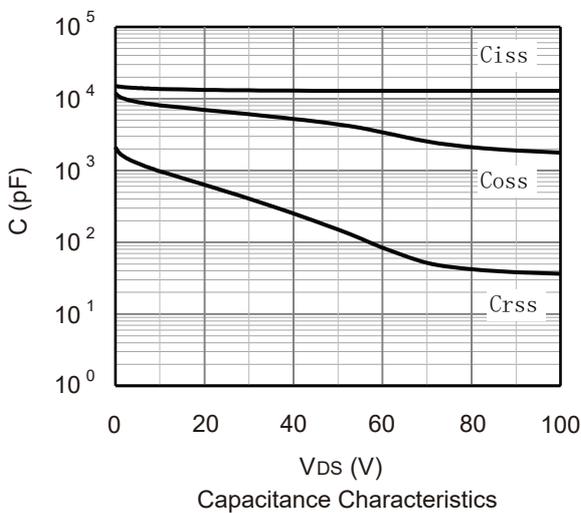
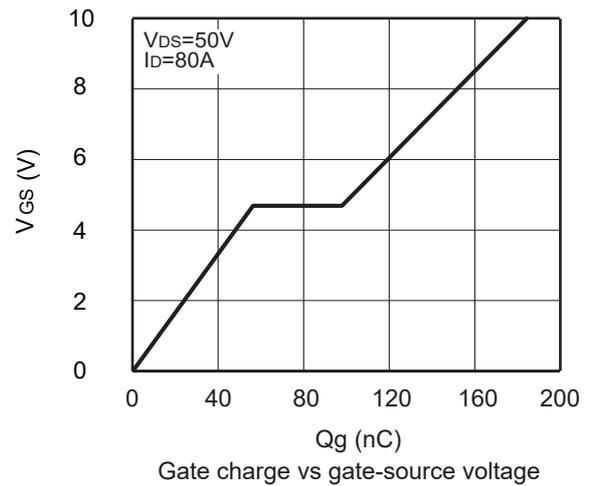
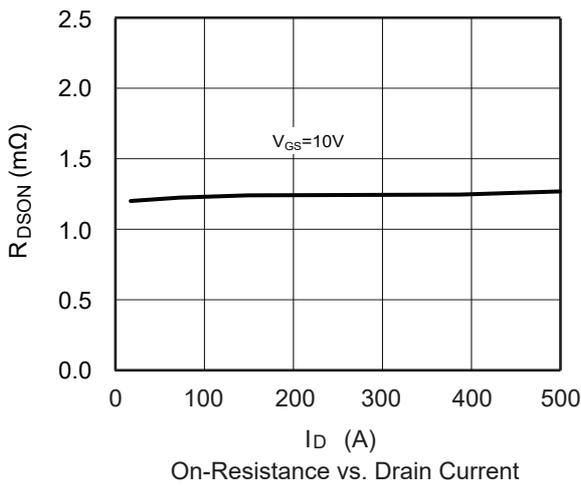
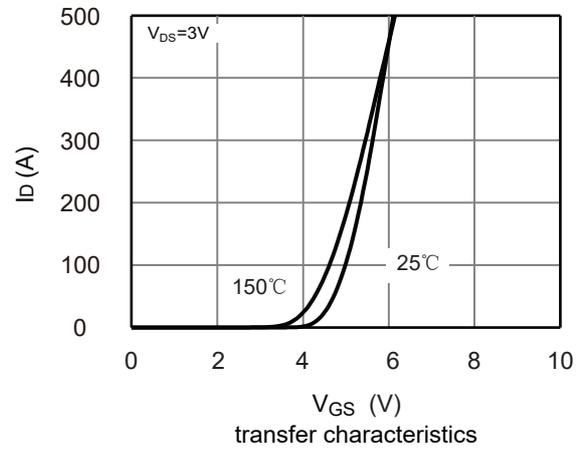
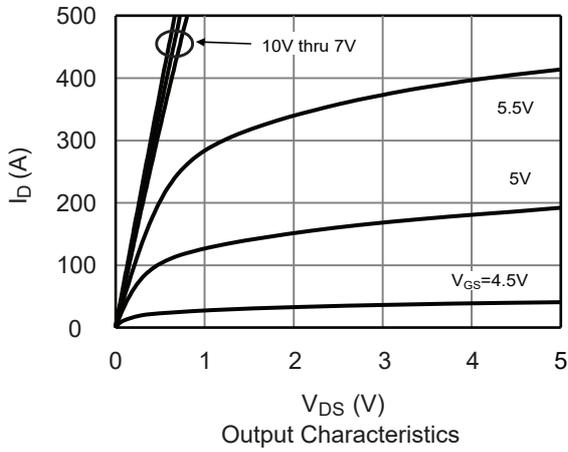
- 1.The EAS data shows Max. rating . The test condition is V_{DD}=50V , V_{GS}=10V , L=1mH , I_{AS}=69.8A.
2. Device mounted on FR-4 substrate PC board with 2oz copper in 1inch square cooling area.
3. Defined by design, not subject to production.

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

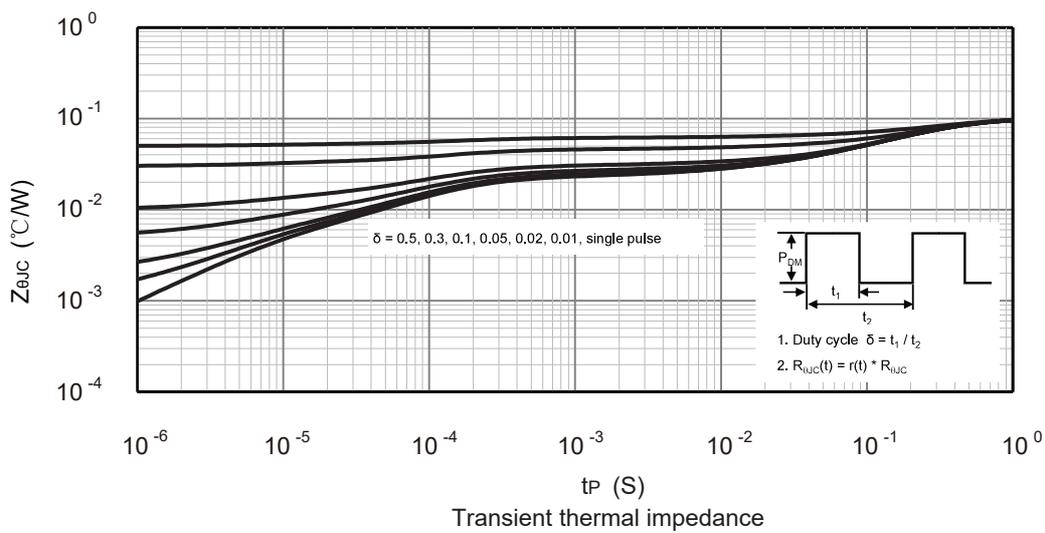
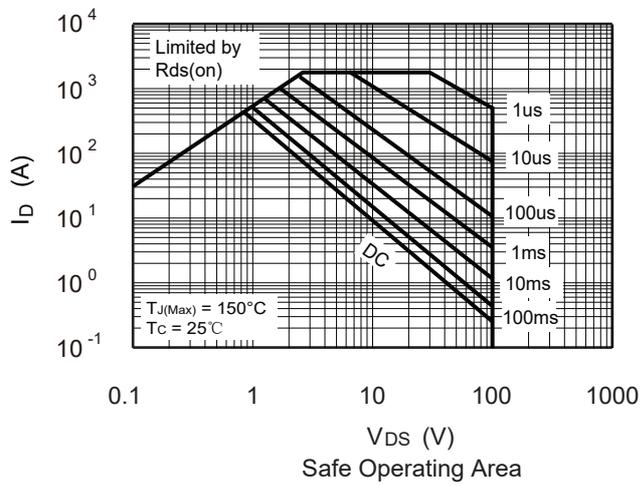
Cmos assumes no liability for customers' product design or applications.

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

Typical Characteristics

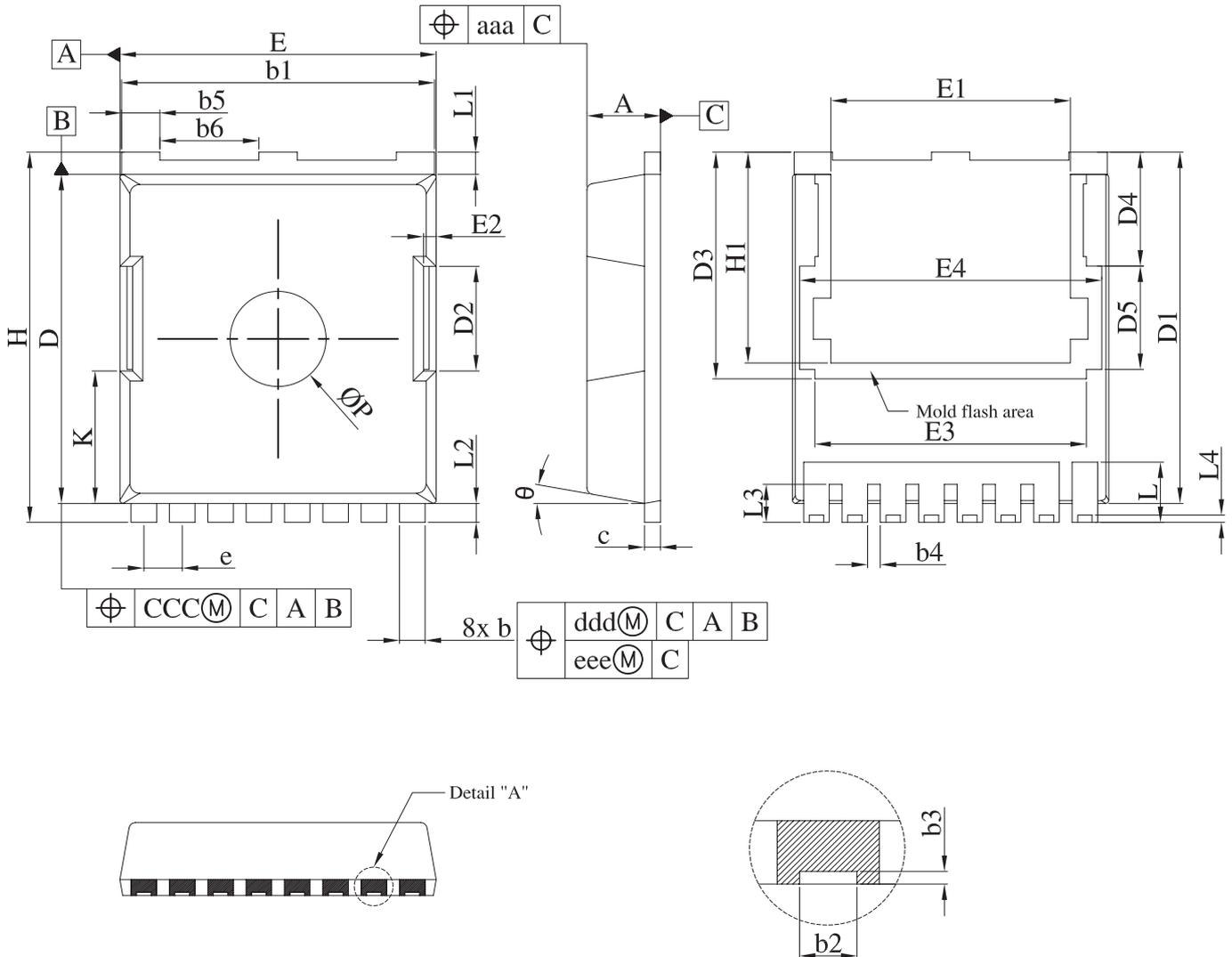


Typical Characteristics



Package Dimension
TOLL-8

Unit :mm



SYMBOL	A	b	b1	b2	b3	b4	b5	b6	c	D	D1	D2	D3	D4	D5	e	E	E1	
MILLIMETER	MIN.	2.2	0.7	9.7	0.36	0.05	0.3	1.1	3	0.4	10.28	10.98	3.2	7.15	3.59	3.26	1.1	9.8	7.4
	TYP.	2.3	0.8	9.8	0.45	0.1	0.4	1.2	3.1	0.5	10.38	11.08	3.3				1.2	9.9	7.5
	MAX.	2.4	0.9	9.9	0.55	/	0.5	1.3	3.2	0.6	10.55	11.18	3.4				1.3	10	7.6
SYMBOL	E2	E3	E4	H	H1	K	L	L1	L2	L3	L4	P	θ	aaa	ccc	ddd	eee		
MILLIMETER	MIN.	0.3	8.5	9.46	11.5	6.55	4.08	1.6	0.5	0.5	1	0.13	2.85	10° REF	0.2	0.2	0.25	0.2	
	TYP.	0.4			11.68	6.65	4.18	1.9	0.7	0.6	1.2	0.23	3						
	MAX.	0.5			11.85	6.75	4.28	2.1	0.9	0.7	1.3	0.33	3.15						