

CMSL30R019SD

300V, 17mΩ typ., 90A N-Channel Super Junction Power MOSFET

General Description

The CMSL30R019SD is power MOSFET using Cmos's advanced super junction technology. The resulting devices provide all benefits of a fast switching super junction MOSFET while offering an extremely fast and robust body diode. This combination of extremely low switching, commutation and conduction losses together with highest robustness make especially resonant switching applications more reliable, more efficient and lighter.

Features

- Multi-layer Epitaxial Chip Technology
- Ultra-fast body diode
- 100% avalanche tested
- RoHS Compliant

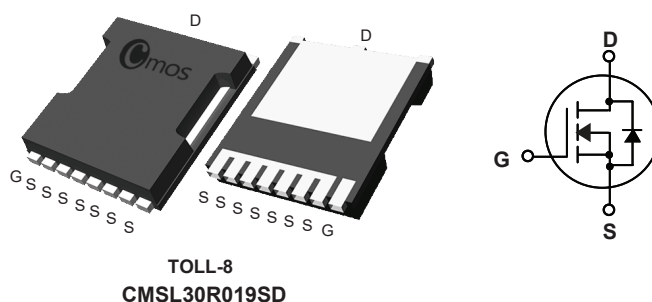
Product Summary

BVDSS	R _{DS(on)} max.	ID
300V	19mΩ	90A

Applications

- Charger
- Power Supply

TOLL-8 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	300	V
V _{GS}	Gate-Source Voltage	±30	V
I _D @T _C =25°C	Continuous Drain Current	90	A
I _D @T _C =100°C	Continuous Drain Current	63	A
I _{DM}	Pulsed Drain Current	360	A
EAS	Single Pulse Avalanche Energy (Note 1)	2535	mJ
P _D @T _C =25°C	Total Power Dissipation	400	W
T _{STG}	Storage Temperature Range	-55 to 150	°C
T _J	Operating Junction Temperature Range	150	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
R _{θJA}	Thermal Resistance Junction-ambient	---	45.0	°C/W
R _{θJC}	Thermal Resistance Junction-case	---	0.31	°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	300	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =10V , I _D =36A	---	17	19	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250μA	3	---	5	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =300V , V _{GS} =0V	---	---	10	uA
I _{GSS}	Gate-Source Leakage Current	V _{GS} = ±30V , V _{DS} =0V	---	---	±100	nA
g _{fs}	Forward Transconductance	V _{DS} =10V , I _D =20A	---	23.3	---	S
R _g	Gate Resistance	V _{DS} =0V , V _{GS} =0V , f=1MHz	---	2.5	---	Ω
Q _g	Total Gate Charge	V _{DD} =150V , I _D =36A V _{GS} =10V	---	100	---	nC
Q _{gs}	Gate-Source Charge		---	43	---	
Q _{gd}	Gate-Drain Charge		---	39	---	
T _{d(on)}	Turn-On Delay Time	V _{DS} =150V , I _D =36A R _G =5Ω , V _{GS} =10V	---	36	---	ns
T _r	Rise Time		---	94	---	
T _{d(off)}	Turn-Off Delay Time		---	65	---	
T _f	Fall Time		---	43	---	
C _{iss}	Input Capacitance	V _{DS} =100V , V _{GS} =0V , f=1MHz	---	5200	---	pF
C _{oss}	Output Capacitance		---	240	---	
C _{rss}	Reverse Transfer Capacitance		---	8	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current	V _G =V _D =0V , Force Current	---	---	90	A
I _{SM}	Pulsed Source Current		---	---	360	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V , I _S =36A , T _J =25°C	---	0.81	1.4	V
t _{rr}	Reverse Recovery Time	di/dt = 100A/μs	---	100	---	ns
Q _{rr}	Reverse Recovery Charge	V _{DD} =100V , I _{SD} =36A	---	0.5	---	μC

Note :

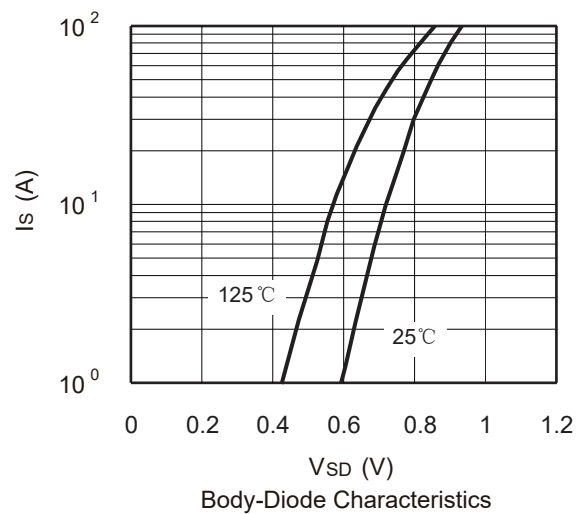
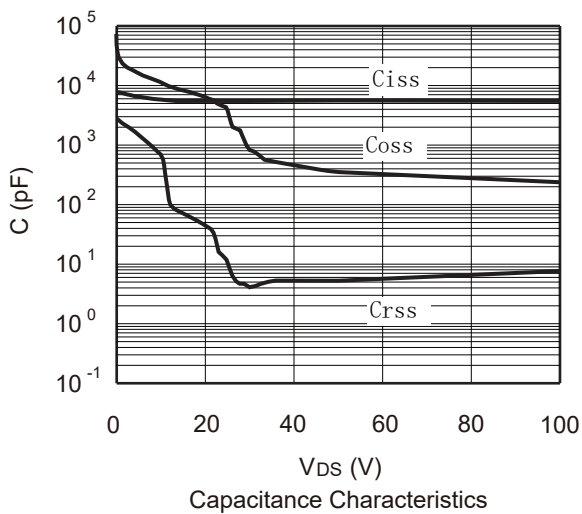
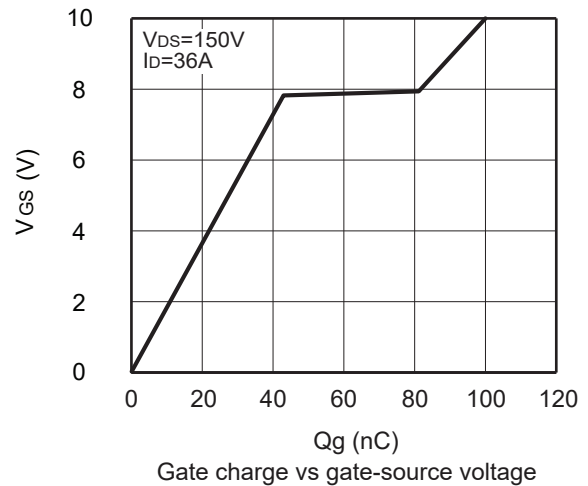
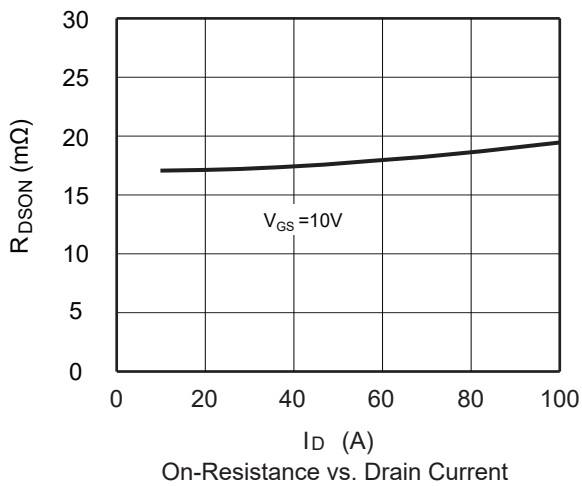
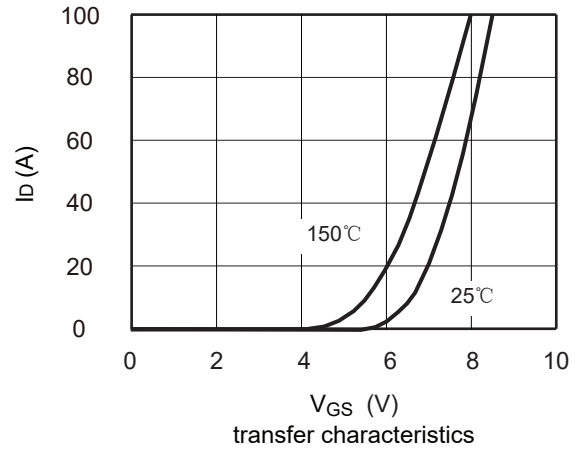
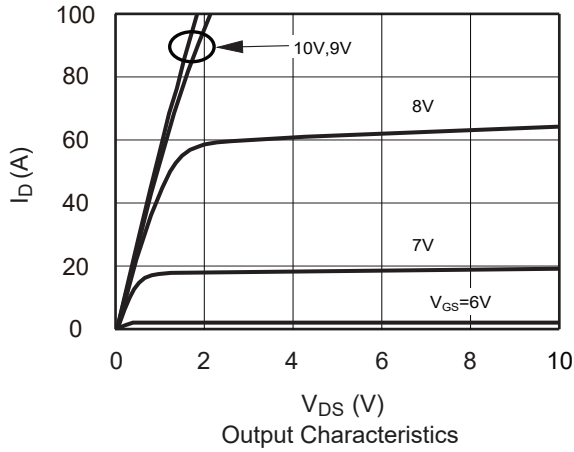
1. The EAS data shows Max. rating .The test condition is V_{DS}=100V , V_{GS}=10V , L=30mH , I_{AS}=13A.

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

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Typical Characteristics



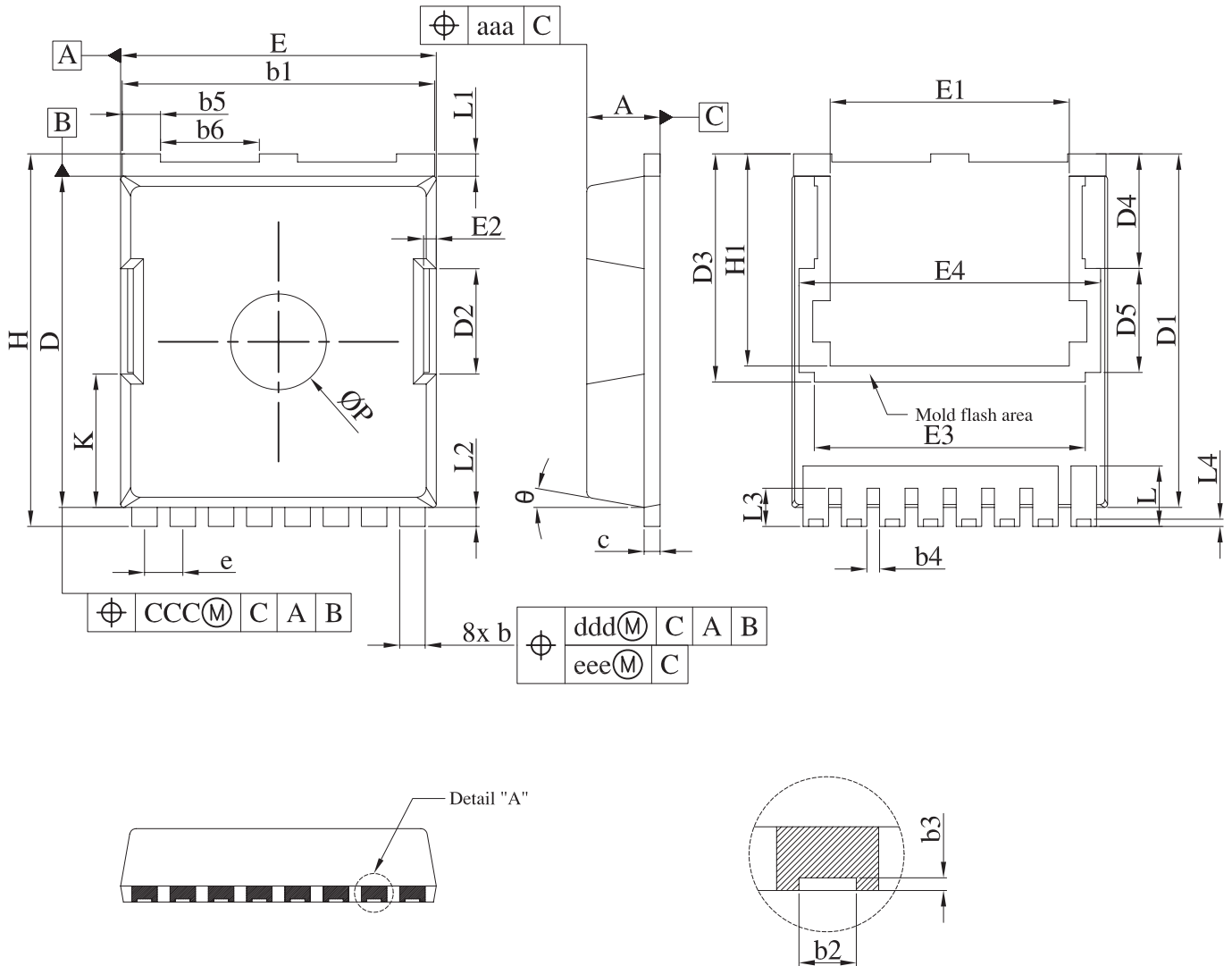
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Package Dimension

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						