

150V, 2.8mΩ typ., 250A N-Channel MOSFET

General Description

The CMSL034N15 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

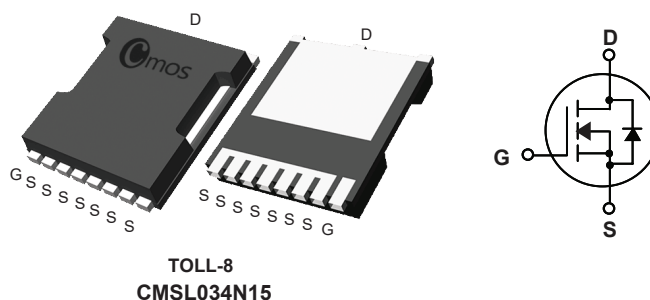
Product Summary

BVDSS	R _{DS(on)} max.	ID
150V	3.3mΩ	250A

Applications

- Motor
- BMS
- Load switch

TOLL-8 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	150	V
V _{GS}	Gate-Source Voltage	±20	V
I _D @T _C =25°C	Continuous Drain Current	250	A
I _D @T _C =100°C	Continuous Drain Current	150	A
I _{DM}	Pulsed Drain Current	1000	A
EAS	Single Pulse Avalanche Energy ¹	1755	mJ
P _D @T _C =25°C	Total Power Dissipation	370	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(min. footprint)	---	62	°C/W
R _{θJC}	Thermal Resistance Junction-case	---	0.34	°C/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	$V_{GS}=0V$, $I_D=250\mu A$	150	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=25A$	---	2.8	3.3	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	2.0	---	4.0	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=150V$, $V_{GS}=0V$	---	---	1	uA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=5V$, $I_D=20A$	---	70	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	1.9	---	Ω
Q_g	Total Gate Charge	$I_D=100A$	---	178	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=75V$	---	73	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$ (note 2)	---	40	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=75V$ $V_{GS}=10V$ $R_{G_ext}=2.7\Omega$ (note 2)	---	42	---	ns
T_r	Rise Time		---	87	---	
$T_{d(off)}$	Turn-Off Delay Time		---	100	---	
T_f	Fall Time		---	43	---	
C_{iss}	Input Capacitance	$V_{DS}=75V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	11500	---	pF
C_{oss}	Output Capacitance		---	820	---	
C_{rss}	Reverse Transfer Capacitance		---	35	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	250	A
I_{SM}	Pulsed Source Current		---	---	1000	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=20A$	---	0.78	1.4	V
t_{rr}	Reverse Recovery Time	$I_S=100A$, $T_J=25^{\circ}\text{C}$	---	114	---	ns
Q_{rr}	Reverse Recovery Charge	$di/dt=100A/\mu s$ (note 2)	---	464	---	nC

Note :

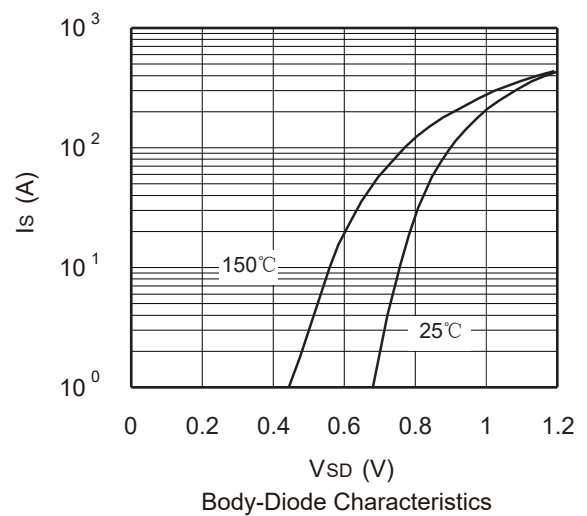
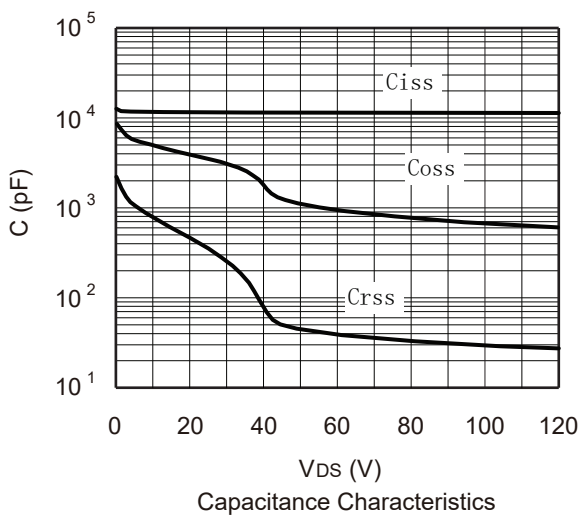
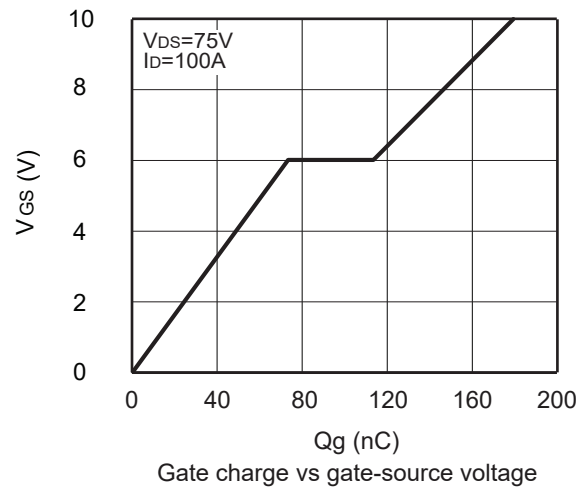
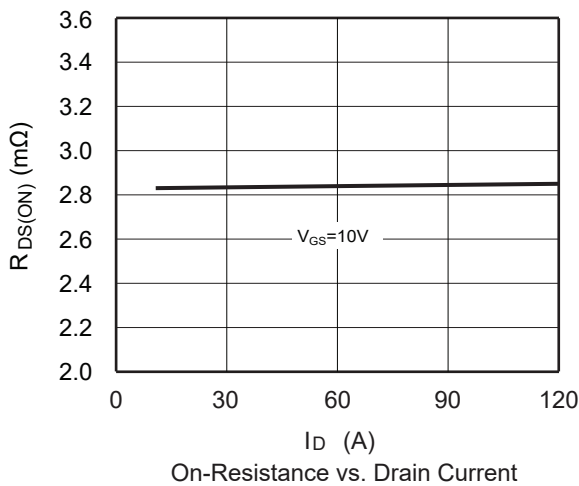
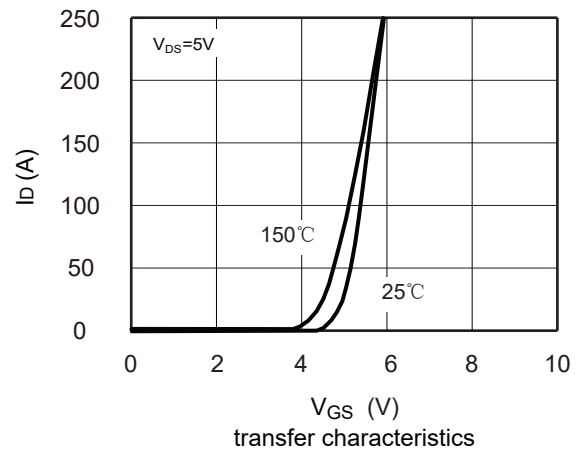
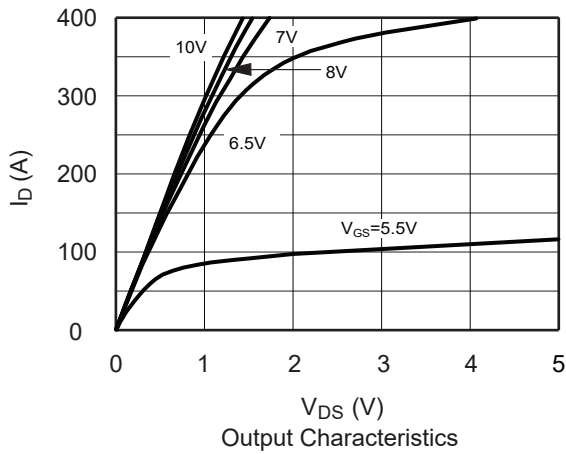
1.The EAS data shows Max. rating . The test condition is $R_G=25^{\circ}\text{C}$, $V_{GS}=10V$, $L=0.5\text{mH}$, $I_{AS}=84A$.

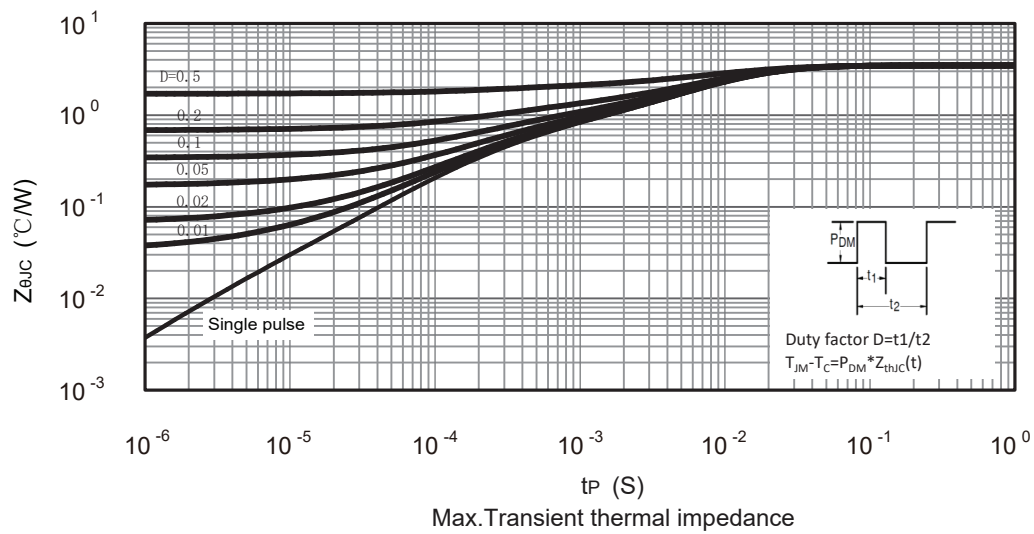
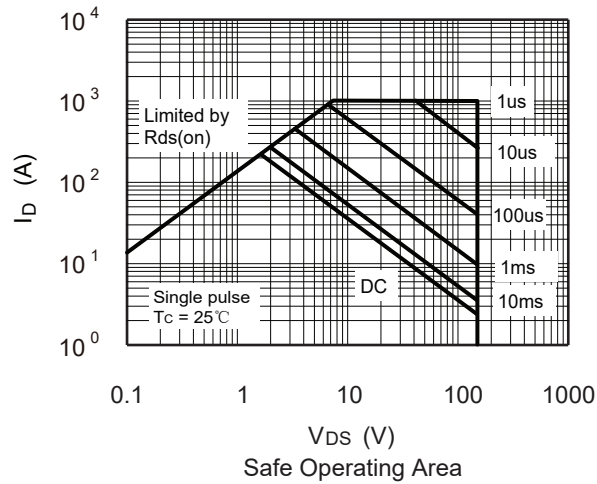
2. Defined by design, not subject to production.

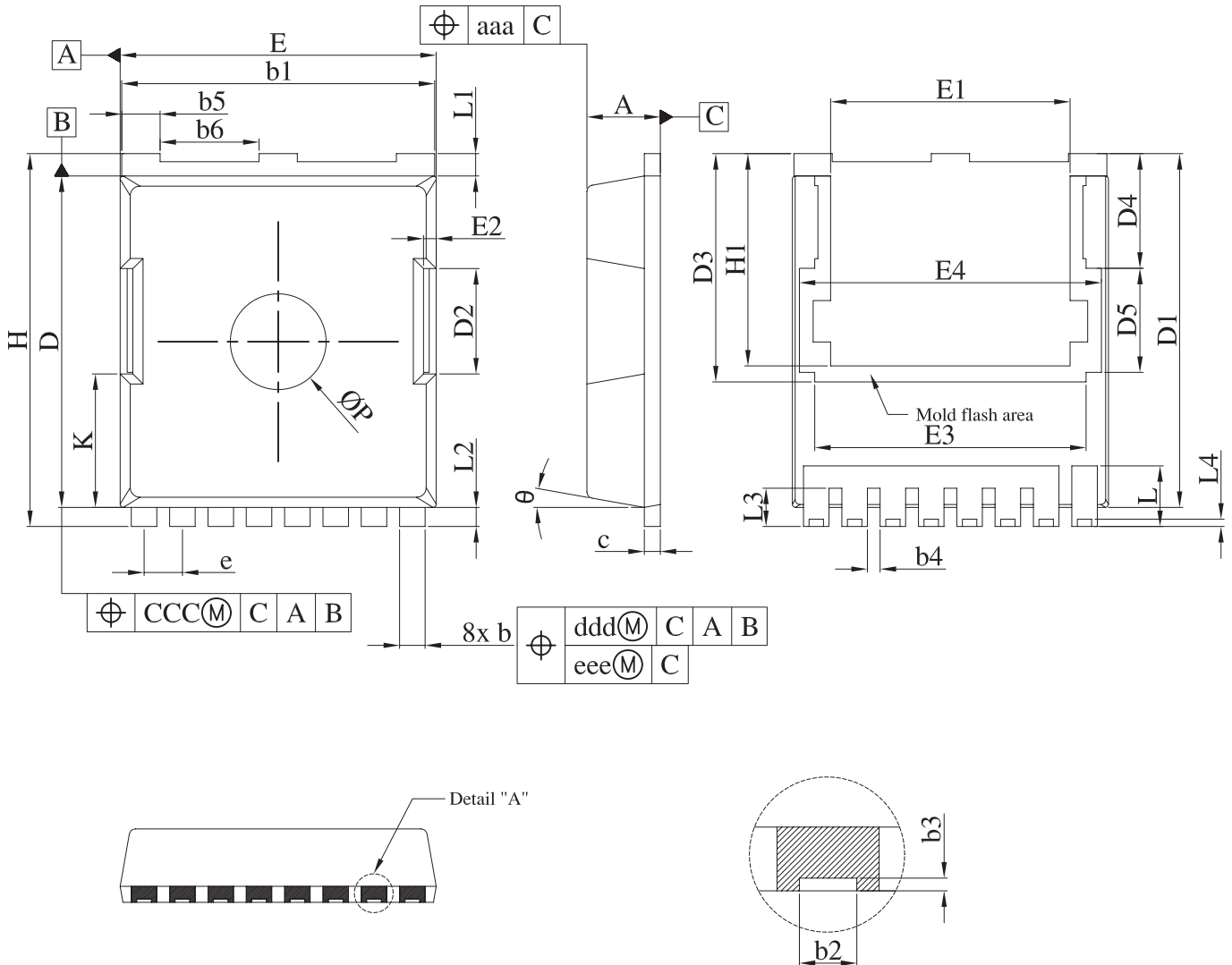
This product has been designed and qualified for the consumer market.

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						