

68V, 5.1mΩ typ., 150A N-Channel MOSFET

General Description

The CMA150N68 uses advanced trench technology to provide excellent RDS(ON). This device is suitable for secondary side synchronous rectification, DC-DC converter, motor control and load switching.

Features

- Low On-Resistance
- 100% avalanche tested
- RoHS Compliant

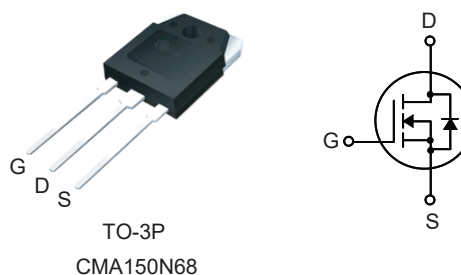
Product Summary

BVDSS	R _{DS(on)} max.	ID
68V	5.8mΩ	150A

Applications

- Motor Control
- DC-DC converters
- Switching applications

TO-3P Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	68	V
V _{GS}	Gate-Source Voltage	±20	V
I _D @T _C =25°C	Continuous Drain Current	150	A
I _D @T _C =100°C	Continuous Drain Current	105	A
I _{DM}	Pulsed Drain Current	600	A
EAS	Single Pulse Avalanche Energy ¹	840	mJ
P _D @T _C =25°C	Total Power Dissipation	200	W
T _{STG}	Storage Temperature Range	-55 to 175	°C
T _J	Operating Junction Temperature Range	-55 to 175	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
R _{θJA}	Thermal Resistance Junction-ambient	---	62	°C/W
R _{θJC}	Thermal Resistance Junction-case	---	0.75	°C/W

Electrical Characteristics ($T_J=25^{\circ}\text{C}$, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	68	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=30A$	---	5.1	5.8	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	2	---	4	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=68V$, $V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	±100	nA
g_{fs}	Forward Transconductance	$V_{DS}=10V$, $I_D=20A$	---	25	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	3	---	Ω
Q_g	Total Gate Charge	$I_D=30A$	---	126	---	nC
Q_{gs}	Gate-Source Charge	$V_{DD}=34V$	---	25	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	50	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=34V$	---	21	---	ns
T_r	Rise Time	$I_D=2A$	---	20	---	
$T_{d(off)}$	Turn-Off Delay Time	$R_G=2.5\Omega$	---	71	---	
T_f	Fall Time	$V_{GS}=10V$	---	50	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	6100	---	pF
C_{oss}	Output Capacitance		---	450	---	
C_{rss}	Reverse Transfer Capacitance		---	320	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	150	A
I_{SM}	Pulsed Source Current		---	---	600	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=20A$, $T_J=25^{\circ}\text{C}$	---	0.82	1.2	V

Notes:

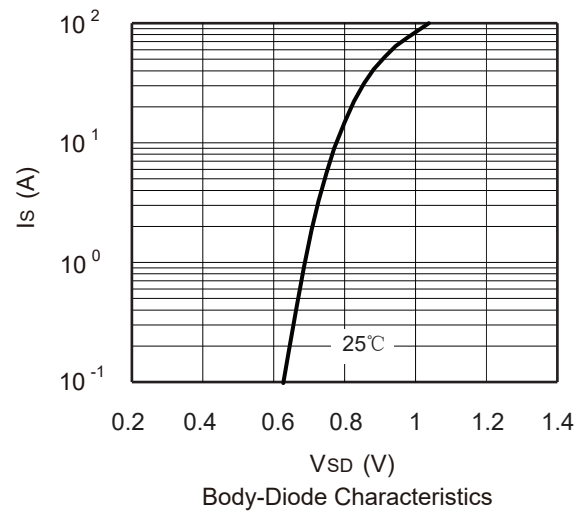
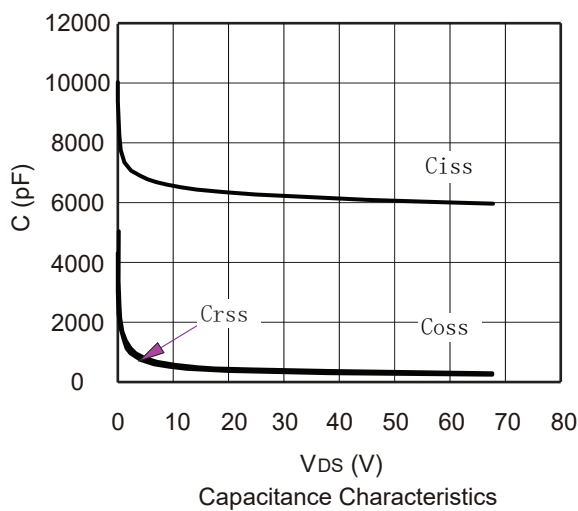
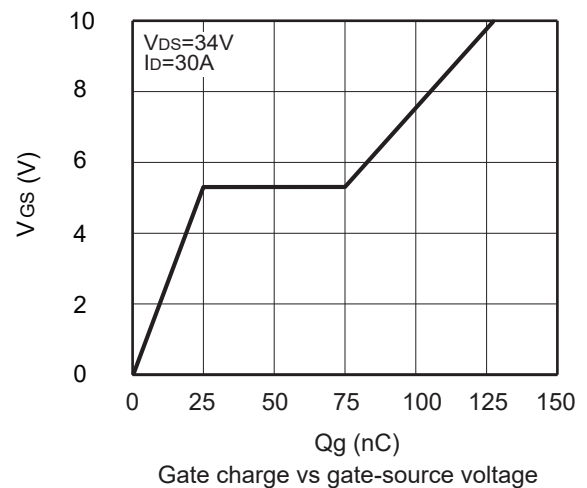
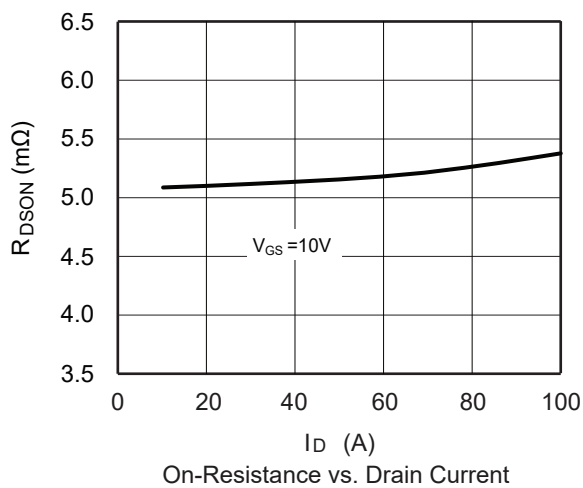
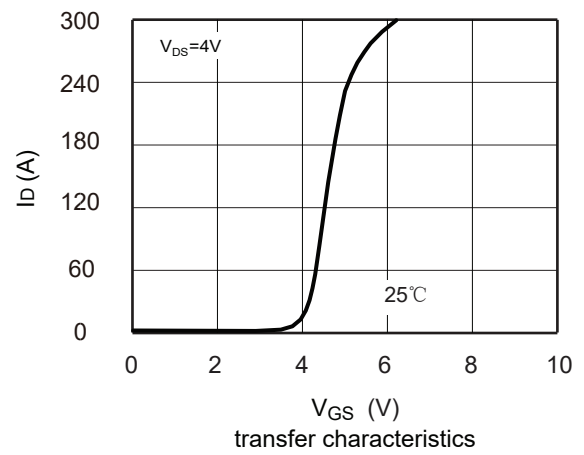
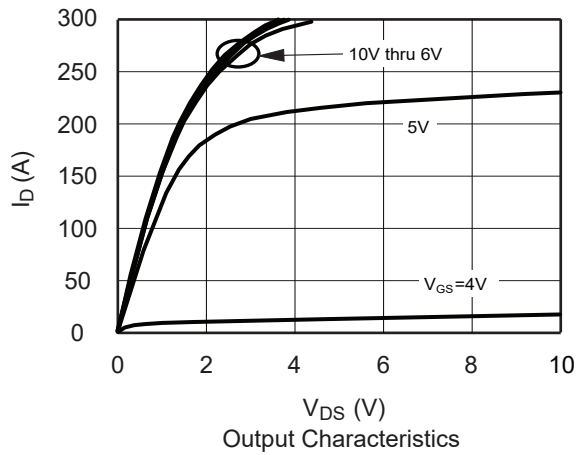
1.The EAS data shows Max. rating .The test condition is $V_{DS}=40V$, $V_{GS}=10V$, $L=1\text{mH}$, $I_{AS}=41A$.

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.

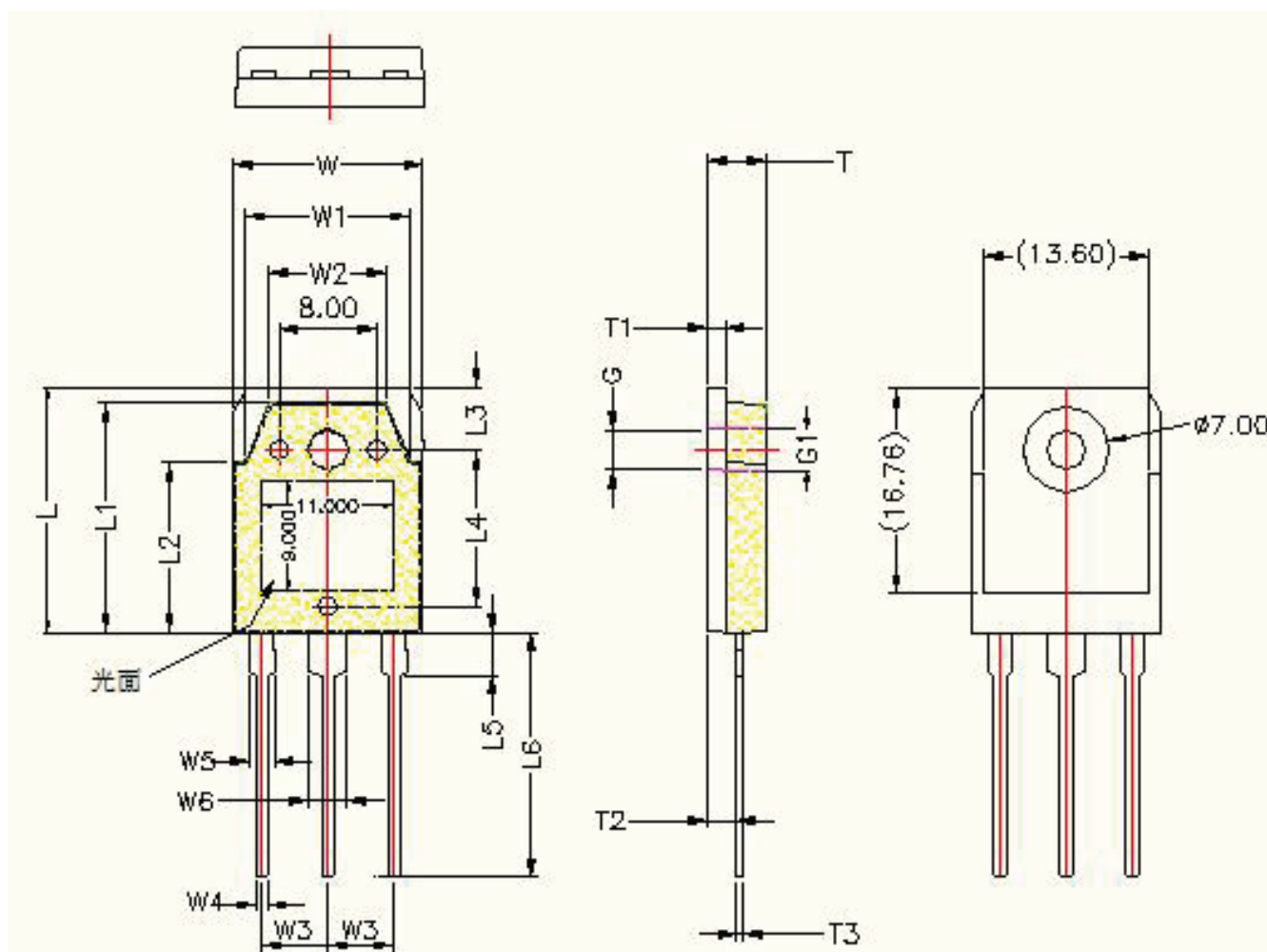
Typical Characteristics



Package Dimension

TO-3P

Unit :mm



Symbol	Dimensions	Symbol	Dimensions	Symbol	Dimensions
W	15.60±0.3	L	19.90±0.3	T	4.80±0.3
W1	13.60±0.3	L1	18.70±0.3	T1	1.50±0.3
W2	9.60±0.3	L2	13.90±0.3	T2	2.40±0.3
W3	5.45(TYP)	L3	5.00±0.3	T3	0.60±0.3
W4	1.00±0.3	L4	12.76±0.3	G	Ø3.25±0.3
W5	2.10±0.2	L5	3.50±0.3	G1	Ø3.58±0.3
W6	3.10±0.2	L6	20.00±0.3		