CMP90N15

150V N-Channel MOSFET

General Description

The CMP90N15 uses advanced trench technology to provide excellent $R_{DS(ON)}$.It can be used in a wide variety of applications.

Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
150V	16mΩ	90A

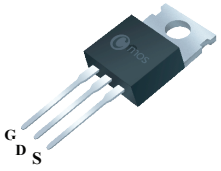
Applications

- Uninterruptible Power Supply
- Hard Switched and High Frequency Circuits

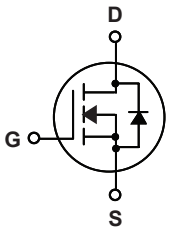
Features

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

TO-220 Pin Configuration



TO-220



Type	Package	Marking
CMP90N15	TO-220	CMP90N15

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	90	A
I_D@T_C=100°C	Continuous Drain Current	70	A
I_{DM}	Pulsed Drain Current[1]	360	A
EAS	Single Pulse Avalanche Energy [2]	1400	mJ
P_D@T_C=25°C	Total Power Dissipation	315	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
$R_{\theta JC}$	Thermal Resistance Junction-case (Steady-State)	---	0.48	°C/W

Electrical Characteristics (T_J=25℃ , unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=250uA	150	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V , I_D=45A	---	---	16	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS} , I_D =250uA	2.5	---	4.5	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=150V , V_{GS}=0V	---	---	1	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±20V, V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=10 V , I_D=20A	---	30	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	4	---	Ω
Q_g	Total Gate Charge	I_D=30A V_{DD}=30 V V_{GS}=10 V	---	251	---	nC
Q_{gs}	Gate-Source Charge		---	49	---	
Q_{gd}	Gate-Drain Charge		---	99	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DD}=30V, I_D=2A R_G=2.5Ω , R_L=15Ω V_{GS}=10V	---	41	---	ns
T_r	Rise Time		---	39	---	
$T_{d(off)}$	Turn-Off Delay Time		---	141	---	
T_f	Fall Time		---	61	---	
C_{iss}	Input Capacitance	V_{DS}=25V , V_{GS}=0V , f=1MHz	---	5200	---	pF
C_{oss}	Output Capacitance		---	460	---	
C_{rss}	Reverse Transfer Capacitance		---	288	---	

Diode Characteristics

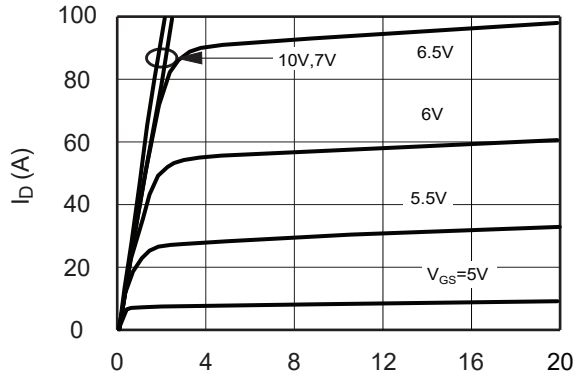
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	90	A
I_{SM}	Pulsed Source Current		---	---	360	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=70A , T_J=25℃	---	---	1.2	V

Note :
1.Repetitive rating; pulse width limited by maximum junction temperature

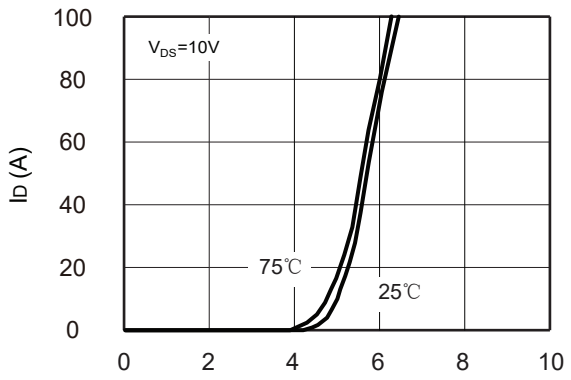
2.EAS condition:T_J=25℃,V_{DD}=50V,V_{GS}=10V,L=1mH ,I_{AS}=53A.

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Cmos assumes no liability for customers' product design or applications.
Cmos reserver the right to improve product design ,functions and reliability wihtout notice.Please refer to the latest version of specification.

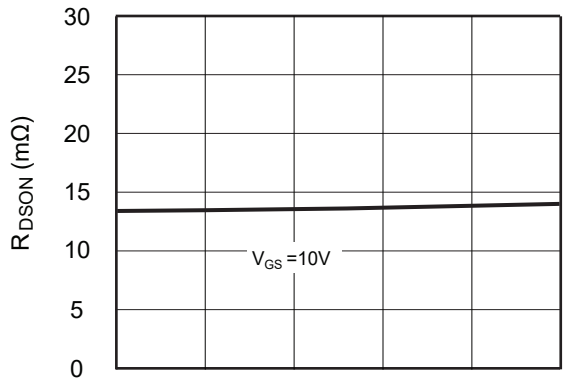
Typical Characteristics



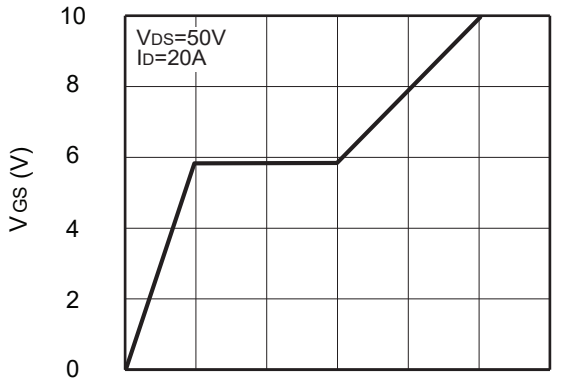
Output Characteristics



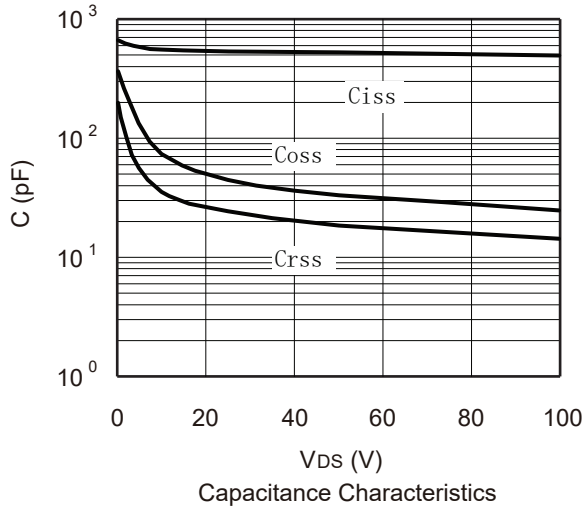
transfer characteristics



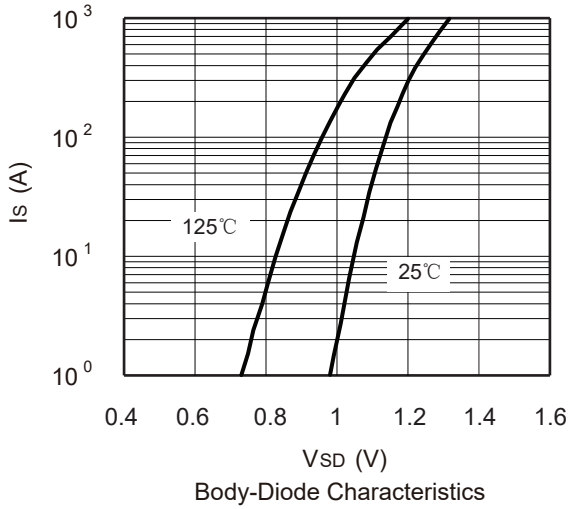
On-Resistance vs. Drain Current



Gate charge vs gate-source voltage



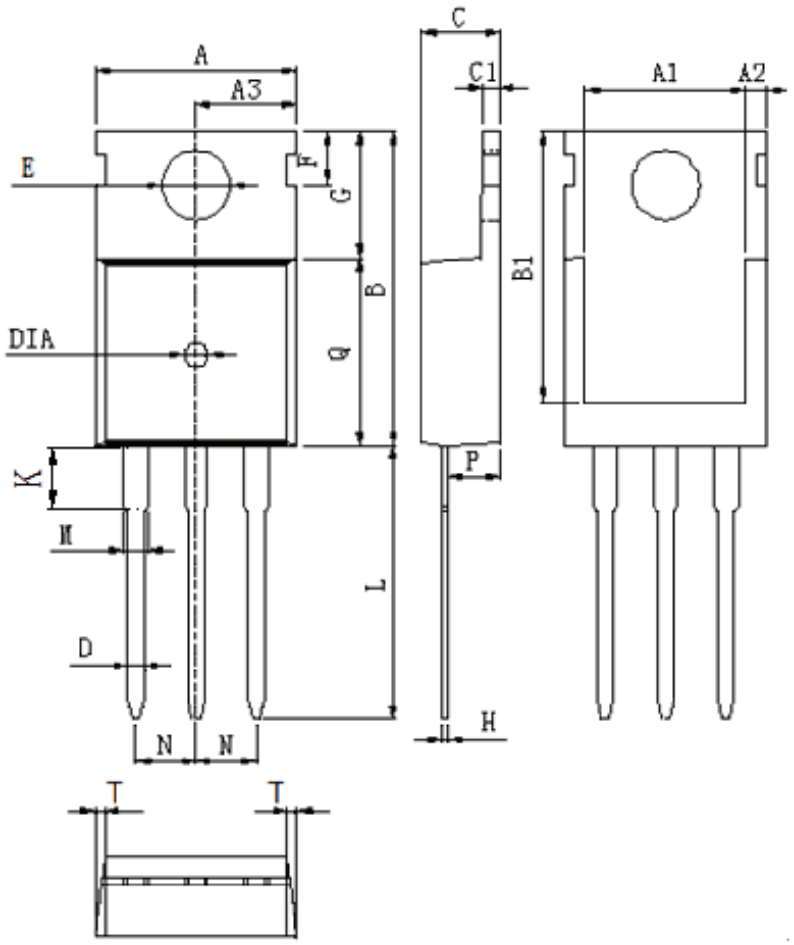
Capacitance Characteristics



Body-Diode Characteristics

Package Dimension

TO-220 Unit :mm



DIM	MILLIMETERS
A	10.0±0.3
A1	8.64±0.2
A2	1.15±0.1
A3	5.0±0.2
B	15.8±0.4
B1	13.2±0.3
C	4.56±0.1
C1	1.3±0.2
D	0.8±0.2
E	3.6±0.2
F	2.95±0.3
G	6.5±0.3
H	0.5±0.1
K	3.1±0.2
L	13.2±0.4
M	1.25±0.1
N	2.54±0.1
P	2.4±0.3
Q	9.0±0.3
T	W:0.35
DIA	⊙1.5(deep 0.2)