

General Description

The 90N15 uses advanced trench technology and design to provide excellent RDS(ON) with low gate charge. The result is outstanding efficiency with controlled switching behavior. This universal technology is well suited for PWM, load switching and general purpose applications.

Features

- Advanced Process Technology
- Ultra Low On-Resistance
- Fast Switching
- Fully Avalanche Rated
- Lead-Free

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	150	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_C=25^\circ C$	Continuous Drain Current	90	A
$I_D@T_C=100^\circ C$	Continuous Drain Current	70	A
I_{DM}	Pulsed Drain Current ¹	360	A
EAS	Single Pulse Avalanche Energy ²	1400	mJ
$P_D@T_C=25^\circ C$	Total Power Dissipation	315	W
T_{STG}	Storage Temperature Range	-55 to 175	$^\circ C$
T_J	Operating Junction Temperature Range	-55 to 175	$^\circ C$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JC}$	Thermal Resistance Junction-case (Steady-State)	---	0.48	$^\circ C/W$

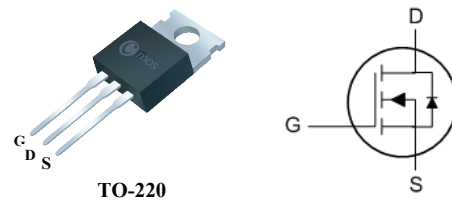
Product Summary

BVDSS	RDSON	ID
150V	16m Ω	90A

Applications

- Uninterruptible Power Supply
- Hard Switched and High Frequency Circuits

TO-220 Pin Configuration



Type	Package	Marking
CMP90N15	TO-220	CMP90N15

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	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
g _{fs}	Forward Transconductance	V _{DS} =10V, 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	---	251	---	nC
Q _{gs}	Gate-Source Charge	V _{DD} =30V	---	49	---	
Q _{gd}	Gate-Drain Charge	V _{GS} =10V	---	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		---	750	---	
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°C	---	---	1	V

Note :

- 1.Repetitive rating; pulse width limited by maximum junction temperature
- 2.EAS condition:T_J=25°C,V_{DD}=50V,V_{GS}=10V,L=1mH,I_{AS}=53A.

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