CMP150N03/CMB150N03/CMI150N03

N-Channel Enhancement Mode Field Effect Transistor

General Description

The 150N03 is N-ch MOSFETs with extreme high cell density , which provide excellent RDSON and gate charge for most of the synchronous buck converter applications.

Features

- Simple Drive Requirement
- Fast Switching
- Low On-Resistance

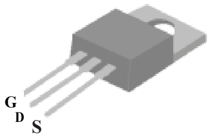
Product Summery

BVDSS	RDSON	ID
30V	4.5mΩ	120A

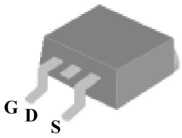
Applications

- HIGH CURRENT, HIGH SPEED SWITCHING
- DC-DC & DC-AC CONVERTERS
- MOTOR CONTROL, AUDIO AMPLIFIERS
- SOLENOID AND RELAY DRIVERS
- AUTOMOTIVE ENVIRONMENT

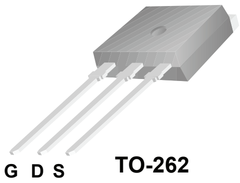
TO220 / TO263 / TO262 Pin Configuration



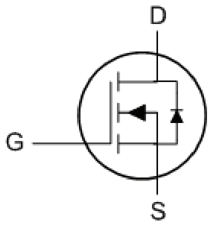
TO-220
(CMP150N03)



TO-263
(CMB150N03)



TO-262
(CMI150N03)



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	±20	V
$I_D@T_C=25^{\circ}C$	Continuous Drain Current [1]	120	A
I_{DM}	Pulsed Drain Current[2]	360	A
EAS	Single Pulse Avalanche Energy[3]	720	mJ
P_D	Total Power Dissipation	250	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
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	62.5	˚C/W
$R_{\theta JC}$	Thermal Resistance Junction-case	---	0.5	˚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	30	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V , I_D=50A	---	---	4.5	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250uA	1	---	3	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=30V , V_{GS}=0V	---	---	1	uA
		V_{DS}=30V , V_{GS}=0V ,TC=125℃	---	---	10	
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±20V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance [4]	V_{DS}=15V , I_D=50A	---	150	---	S
Q_g	Total Gate Charge	I_D=120A V_{DD}=24V V_{GS}=10V	---	95	135	nC
Q_{gs}	Gate-Source Charge		---	28	---	
Q_{gd}	Gate-Drain Charge		---	35	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DD}=15V I_D=60A R_G=4.7 Ω V_{GS}=10V	---	30	---	ns
T_r	Rise Time		---	208	---	
$T_{d(off)}$	Turn-Off Delay Time		---	82	---	
T_f	Fall Time		---	45	---	
C_{iss}	Input Capacitance	V_{DS}=25V , V_{GS}=0V , f=1MHz	---	4600	---	pF
C_{oss}	Output Capacitance		---	980	---	
C_{rss}	Reverse Transfer Capacitance		---	115	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	120	A
I_{SM}	Pulsed Source Current[2]		---	---	360	A
V_{SD}	Diode Forward Voltage[4]	V_{GS}=0V , I_S=120A	---	---	1.3	V

Note :
1.Current Limited by Package
2.Pulse width limited by safe operating area
3.Starting Tj = 25°C, Id = 60A, VDD=30 V
4.Pulsed: pulse duration=300μs, duty cycle 1.5%