

General Description

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

Features

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

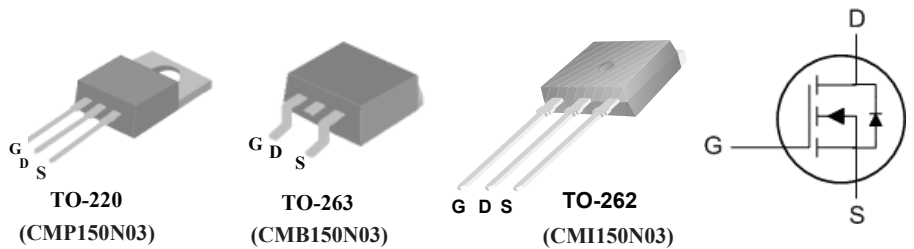
Product Summary

BVDSS	RDS(on)	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



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	$^\circ C$
T_J	Operating Junction Temperature Range	-55 to 175	$^\circ C$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	62.5	$^\circ C/W$
$R_{\theta JC}$	Thermal Resistance Junction-case	---	0.5	$^\circ C/W$

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	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°C	---	---	10	
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±20V, V _{DS} =0V	---	---	±100	nA
g _{fs}	Forward Transconductance ⁴	V _{DS} =15V, I _D =50A	---	150	---	S
Q _g	Total Gate Charge	I _D =120A	---	95	135	nC
Q _{gs}	Gate-Source Charge	V _{DD} =24V	---	28	---	
Q _{gd}	Gate-Drain Charge	V _{GS} =10V	---	35	---	
T _{d(on)}	Turn-On Delay Time	V _{DD} =15V	---	30	---	ns
T _r	Rise Time	I _D =60A	---	208	---	
T _{d(off)}	Turn-Off Delay Time	R _G =4.7 Ω	---	82	---	
T _f	Fall Time	V _{GS} =10V	---	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 T_J = 25°C, I_D = 60A, V_{DD}=30 V
- 4.Pulsed: pulse duration=300μs, duty cycle 1.5%