

General Description

The 250N03 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

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	250	A
$I_D@T_C=100^\circ C$	Continuous Drain Current	180	A
I_{DM}	Pulsed Drain Current ¹	750	A
EAS	Single Pulse Avalanche Energy	950	mJ
P_D	Total Power Dissipation	200	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ C$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ C$

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	---	0.48	$^\circ C/W$

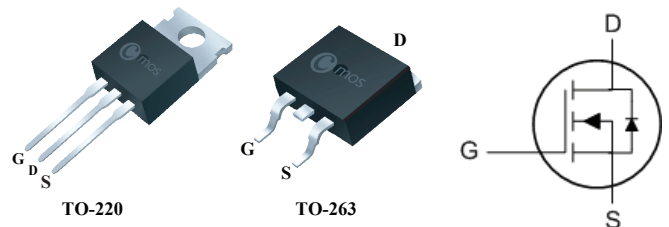
Product Summary

BVDSS	RDS(on)	ID
30V	2m Ω	250A

Applications

- DC-DC & DC-AC converters
- High current, High speed switching
- Motor control, Audio amplifiers
- Solenoid and relay drivers

TO-220/263 Pin Configuration



Type	Package	Marking
CMP250N03	TO-220	CMP250N03
CMB250N03	TO-263	CMB250N03

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	25	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V, I_D=30A$	---	---	2	m Ω
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\mu A$	2	---	4	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=24V, V_{GS}=0V$	---	---	1	mA
		$V_{DS}=24V, V_{GS}=0V, TC=55^{\circ}\text{C}$	---	---	2	
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=10V, I_D=30A$	---	40	---	S
R_g	Gate Resistance	$V_{DS}=0V, V_{GS}=0V, f=1\text{MHz}$	---	5	---	Ω
Q_g	Total Gate Charge	$I_D=120A$	---	230	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=20V$	---	25	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	60	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=15V$	---	50	---	ns
T_r	Rise Time	$R_L=30\Omega$	---	110	---	
$T_{d(off)}$	Turn-Off Delay Time	$R_G=6\Omega$	---	90	---	
T_f	Fall Time	$V_{GS}=10V$	---	75	---	
C_{iss}	Input Capacitance	$V_{DS}=12.5V, V_{GS}=0V, f=1\text{MHz}$	---	6100	---	pF
C_{oss}	Output Capacitance		---	1150	---	
C_{rss}	Reverse Transfer Capacitance		---	730	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	250	A
V_{SD}	Diode Forward Voltage ¹	$V_{GS}=0V, I_F=30A, T_J=25^{\circ}\text{C}$	---	---	1.1	V

Note :

1.The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

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