CMP18N30/CMF18N30

300V N-Channel MOSFET

General Description

The 18N30 is fabricated using an advanced high voltage MOSFET process that is designed to provide excellent $R_{DS(ON)}$.

These devices are well suited for high efficient switched mode power suppliesand active power factor correction.

Product Summary

BVDSS	RDSON	ID
300V	290mΩ	14A

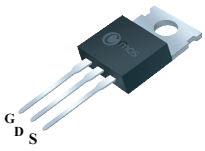
Applications

- Automotive、DC Motor Control and Class D Amplifier.

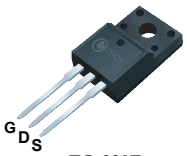
Features

- Fast switching
- 100% avalanche tested
- Improved dv/dt capability
- RoHS Compliant

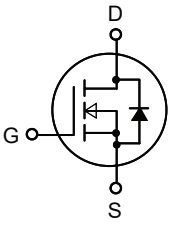
TO-220/220F Pin Configuration



TO -220
(CMP18N30)



TO-220F
(CMF18N30)



Absolute Maximum Ratings

Symbol	Parameter	220	220F	Units
V_{DS}	Drain-Source Voltage	300		V
V_{GS}	Gate-Source Voltage	±30		V
I_D@T_C=25℃	Continuous Drain Current	14	14*	A
I_D@T_C=100℃	Continuous Drain Current	8.8	8.8*	A
I_{DM}	Pulsed Drain Current	56	56*	A
EAS	Single Pulse Avalanche Energy[1]	144		mJ
P_D@T_C=25℃	Total Power Dissipation	140	35	W
T_{STG}	Storage Temperature Range	-55 to 150		℃
T_J	Operating Junction Temperature Range	-55 to 150		℃

* Drain current limited by maximum junction temperature

Thermal Data

Symbol	Parameter	220	220F	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	62.5	62.5	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-case	0.89	0.89	℃/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	300	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V , I_D=9A	---	240	290	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250uA	3	---	5	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=300V , V_{GS} =0V	---	---	1	uA
		V_{DS}=300V, V_{GS}=0V , T_C=125℃	---	---	200	
I_{GSS}	Gate-Source Leakage Current	V_{GS} = ±30V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance [3]	V_{DS}=10V , I_D =9A	---	11	---	S
Q_g	Total Gate Charge [2,3]	I_D=14 A V_{DD}=240 V V_{GS}=10 V	---	24	---	nC
Q_{gs}	Gate-Source Charge [2,3]		---	8.5	---	
Q_{gd}	Gate-Drain Charge [2,3]		---	9.5	---	
$T_{d(on)}$	Turn-On Delay Time [2,3]	V_{DD}=150 V I_D=14A R_G=25Ω	---	22	---	ns
T_r	Rise Time [2,3]		---	145	---	
$T_{d(off)}$	Turn-Off Delay Time [2,3]		---	45	---	
T_f	Fall Time [2,3]		---	70	---	
C_{iss}	Input Capacitance	V_{DS}=25V , V_{GS}=0V , f=1MHz	---	1100	---	pF
C_{oss}	Output Capacitance		---	155	---	
C_{rss}	Reverse Transfer Capacitance		---	20	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	14	A
I_{SM}	Pulsed Source Current		---	---	56	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=14 A, T_J=25℃	---	---	1.4	V

Note :

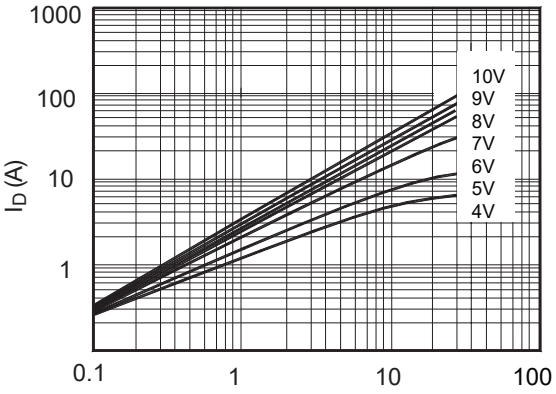
1.The test condition is V_{DD}=80V , V_{GS}=10V , L=2mH , I_{AS}=12A.

2.Pulse test: Pulse width≤300us, Duty cycle≤2%.

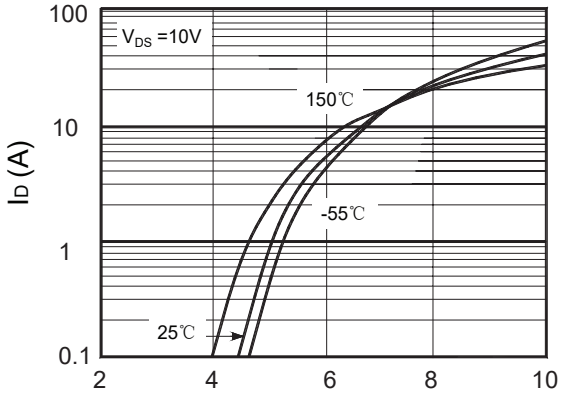
3.Essentially independent of operating temperature.

This product has been designed and qualified for the counsumer market.
Cmos assumes no liability for customers' product design or applications.
Cmos reserver the right to improve product design ,functions and reliability wihtout notice.

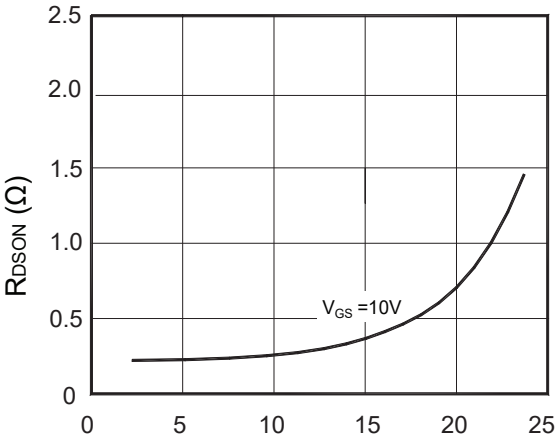
Typical Characteristics



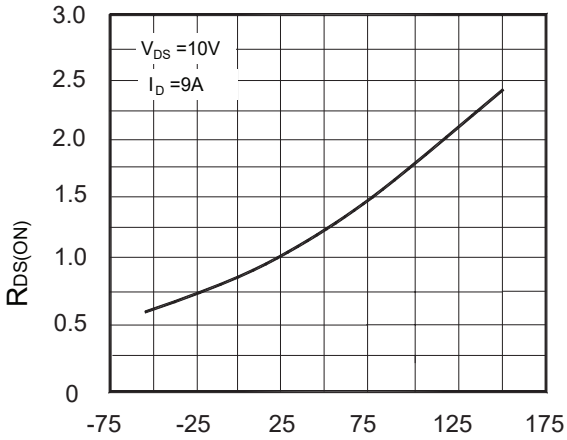
Output Characteristics



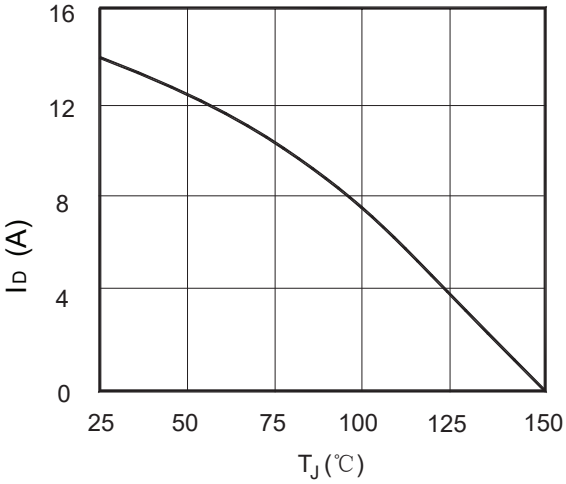
transfer characteristics



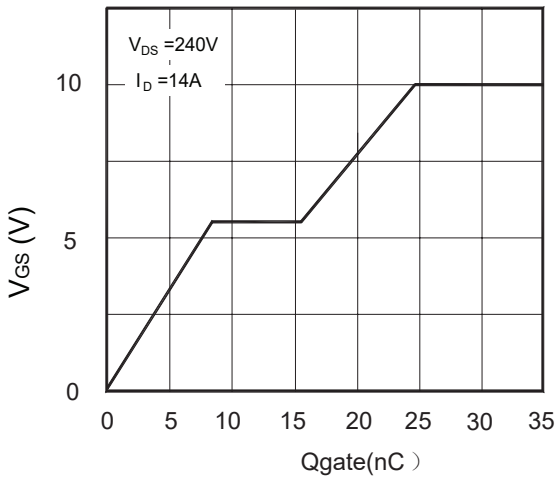
On-Resistance vs Drain Current



$V_{(BR)DSS}$ vs temperature

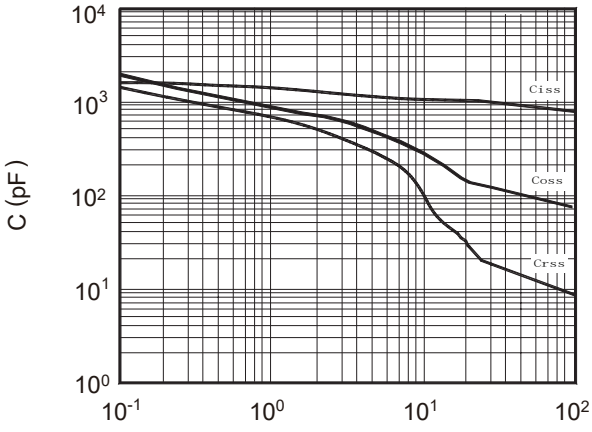


Drain Current vs temperature

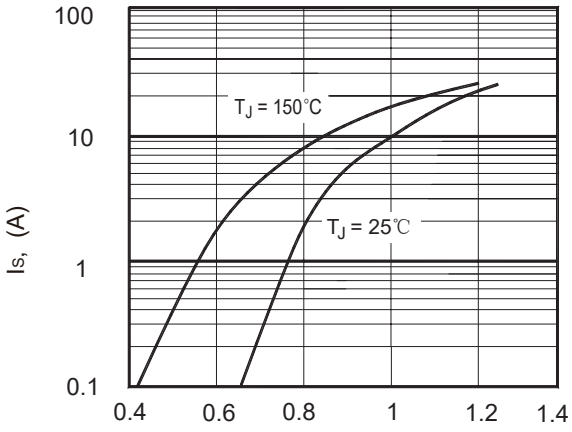


Gate charge vs gate-source voltage

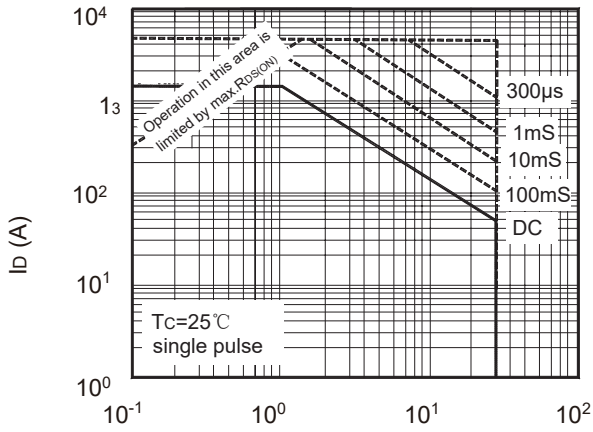
Typical Characteristics



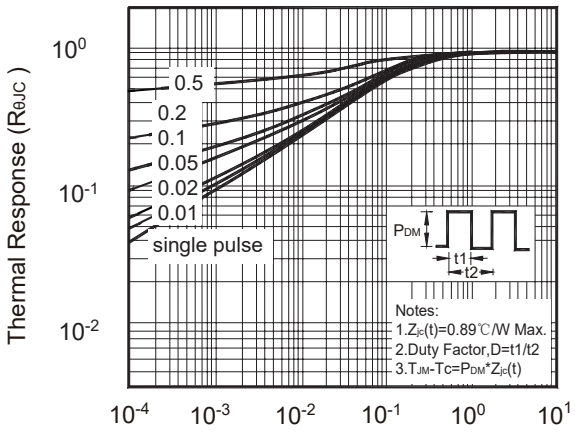
Capacitance Characteristics



Body-Diode Characteristics



Safe operating area



Square Wave Pulse Duration (s)
Thermal Impedance