CMP13N65/CMB13N65/CMI13N65/CMF13N65

650V, 575mΩ typ., 13A N-Channel MOSFET

General Description

These Power MOSFETs are produced using Cmos's proprietary, planar stripe, DMOS technology.These devices are suitable device for SMPS and general purpose applications.

Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
650V	650mΩ	13A

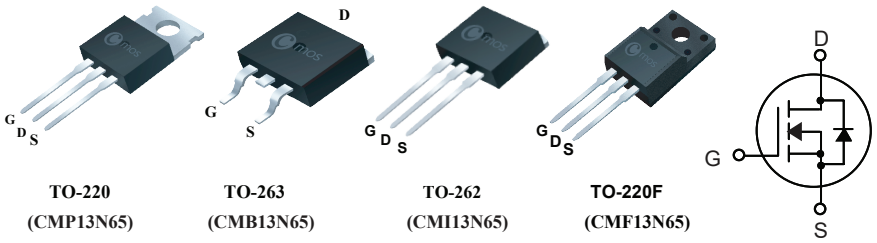
Applications

- PFC
- Power Supply
- High Current, High Speed Switching

Features

- 100% avalanche tested
- High Forward Transconductance
- RoHS Compliant

TO-220/263/262/220F Pin Configuration



TO-220 (CMP13N65) | TO-263 (CMB13N65) | TO-262 (CMI13N65) | TO-220F (CMF13N65)

Absolute Maximum Ratings

Symbol	Parameter	220/263/262	220F	Units
V_{DS}	Drain-Source Voltage	650		V
V_{GS}	Gate-Source Voltage	±30		V
I_D@T_C=25℃	Continuous Drain Current	13	13*	A
I_D@T_C=100℃	Continuous Drain Current	9	9*	A
I_{DM}	Pulsed Drain Current	52	52*	A
EAS	Single Pulse Avalanche Energy (Note 1)	281		mJ
P_D@T_C=25℃	Total Power Dissipation	230	54	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	220/263/262	220F	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient Max.	62.5	62.5	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-case Max.	0.54	2.31	℃/W

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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	650	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V , I_D=6.5A	---	575	650	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250μA	2	---	4	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=650V , V_{GS}=0V	---	---	1	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS}= ±30V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=20V, I_D =6.5A	---	12	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	2	---	Ω
Q_g	Total Gate Charge	V_{DD}=400V , I_D=11A V_{GS}=10V	---	30	---	nC
Q_{gs}	Gate-Source Charge		---	12	---	
Q_{gd}	Gate-Drain Charge		---	9	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DD}=200V , V_{GS}=10V , I_D=5.5A R_G =50Ω , R_L=36Ω	---	80	---	ns
T_r	Rise Time		---	30	---	
$T_{d(off)}$	Turn-Off Delay Time		---	135	---	
T_f	Fall Time		---	20	---	
C_{iss}	Input Capacitance	V_{DS}=25V , V_{GS}=0V , f=1MHz	---	2000	---	pF
C_{oss}	Output Capacitance		---	150	---	
C_{rss}	Reverse Transfer Capacitance		---	4	---	

Diode Characteristics

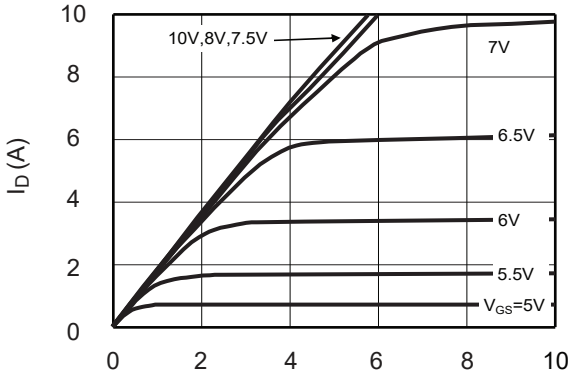
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Diode continuous forward current	V_G=V_D=0V , Force Current	---	---	13	A
$I_{S,pulse}$	Diode pulse current		---	---	52	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_F=13A , Tj=25 ℃	---	0.85	1.4	V

Note :

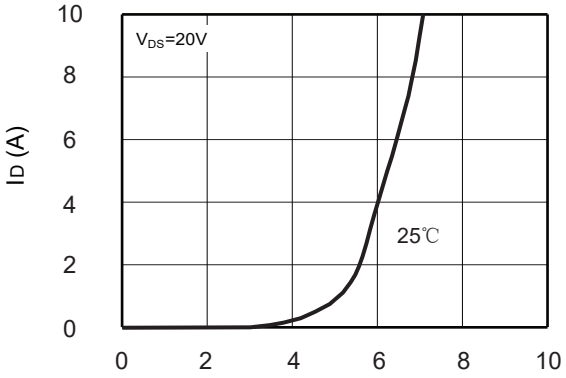
1.The EAS data shows Max. rating .The test condition is V_{DS}=80V , V_{GS}=10V , L=10mH , I_{AS}=7.5A.

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.

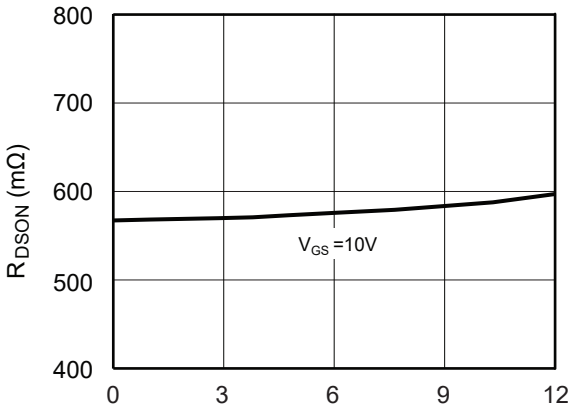
Typical Characteristics



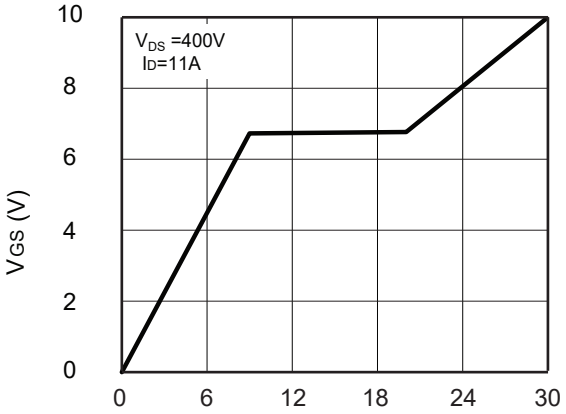
Output Characteristics



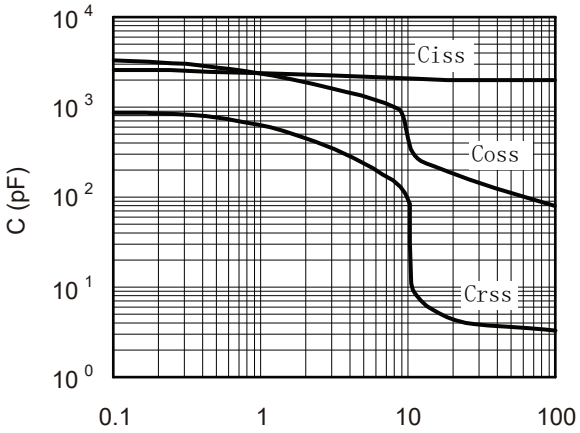
transfer characteristics



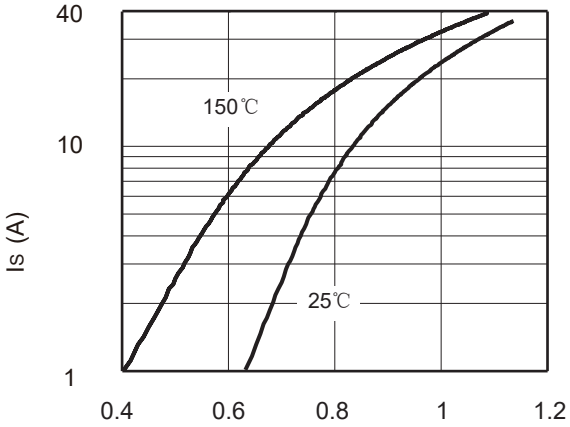
drain-source on-resistance



Gate charge vs gate-source voltage



Capacitance Characteristics



Body-Diode Characteristics