CMP55NF06

N-Channel 40V 60A Power MOSFET

General Description

This N-Channel MOSFET has been produced using advanced Power Trench technology to deliver low RDS(on) and optimized BVDSS capability to offer superior performance benefit in the application.

Features

- 60A,40V.RDS(ON)=14Ω@VGS=10V
- Fast Switching
- N-channel-Enhancement mode
- 100% Avalanche Tested

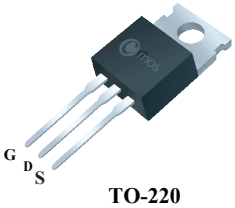
Product Summary

BVDSS	RDSON	ID
40V	14mΩ	60A

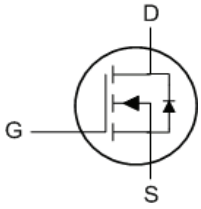
Applications

- Power Supplies
- DC-DC & DC-AC Converters
- Inverter

TO-220 Pin Configuration



TO-220
(CMP55NF06)



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	40	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_C=25°C	Continuous Drain Current [1]	60	A
I_{DM}	Pulsed Drain Current [2]	180	A
EAS	Single Pulse Avalanche Energy [3]	300	mJ
P_D@T_C=25°C	Total Power Dissipation	63	W
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

Symbol	Parameter	Rating	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	50	°C/W
$R_{\theta JC}$	Thermal Resistance Junction-case	2	°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	40	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V, I_D=28A	---	---	14	mΩ
		V_{GS}=4.5V, I_D=25A	---	---	17	
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250uA	1	---	2.5	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=40V , V_{GS}=0V	---	---	1	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±20V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=5V, I_D=28A	---	18	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	6	---	Ω
Q_g	Total Gate Charge	I_D=30 A V_{DS}=15 V V_{GS}=10V	---	32	---	nC
Q_{gs}	Gate-Source Charge		---	3.5	---	
Q_{gd}	Gate-Drain Charge		---	7.5	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DD}=15 V I_D=30A R_{GEN}=6Ω V_{GS}=10V	---	20	---	ns
T_r	Rise Time		---	21	---	
$T_{d(off)}$	Turn-Off Delay Time		---	45	---	
T_f	Fall Time		---	15	---	
C_{iss}	Input Capacitance	V_{DS}=20V , V_{GS}=0V , f=1MHz	---	1500	---	pF
C_{oss}	Output Capacitance		---	280	---	
C_{rss}	Reverse Transfer Capacitance		---	150	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	60	A
I_{SM}	Pulsed Source Current		---	---	180	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=28A, T_J=25	---	---	1.5	V

Notes:

1.Surface Mounted on FR4 Board,t < 10sec.

2.Pulse Test:Pulse Width < 300us, Duty Cycle < 2%.

3.Starting T_J = 25°C, L= 4mH, I_{AS} = 12.5A, V_{DD}= 20V, V_{GS}= 10V.