CMP3205

N-Ch 60V Fast Switching MOSFETs

General Description

The CMP3205 is a N-channel Power MOSFET. It has specifically been designed to minimize input capacitance and gate charge. The device is therefore suitable in advanced high-efficiency switching applications.

Product Summery

BVDSS	RDSON	ID
60V	8.0mΩ	100A

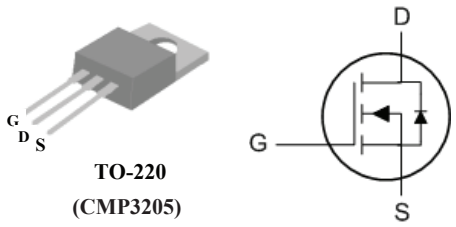
Applications

- LED POWER CONTROLLER
- DC-DC & DC-AC CONVERTERS
- HIGH CURRENT, HIGH SPEED SWITCHING
- SOLENOID AND RELAY DRIVERS
- MOTOR CONTROL, AUDIO AMPLIFIERS

Features

- Advanced Process Technology
- Ultra Low On-Resistance
- Dynamic dv/dt Rating
- 175°C Operating Temperature
- Fast Switching
- Fully Avalanche Rated
- Lead-Free

TO220 Pin Configuration



TO-220
(CMP3205)

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_C=25°C	Continuous Drain Current[1]	100	A
I_D@T_C=100°C	Continuous Drain Current[1]	68	A
I_{DM}	Pulsed Drain Current[2]	300	A
EAS	Single Pulse Avalanche Energy[3]	600	mJ
I_{AS}	Avalanche Current	62	A
P_D@T_C=25°C	Total Power Dissipation	190	W
T_{STG}	Storage Temperature Range	-55 to 175	°C
T_J	Operating Junction Temperature Range	-55 to 175	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient[1]	---	62.5	°C/W
$R_{\theta JC}$	Thermal Resistance Junction-case	---	0.79	°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	60	---	---	V
$\triangle BV_{DSS}/\triangle T_J$	BVDSS Temperature Coefficient	Reference to 25℃ , I_D=1mA	---	0.057	---	V/℃
$R_{DS(ON)}$	Static Drain-Source On-Resistance[2]	V_{GS}=10V , I_D=62A	---	7.8	8.0	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250uA	2	3	4	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=Max rating, V_{GS}=0V	---	---	1	uA
		V_{DS}=Max rating, V_{GS}=0V @125℃	---	---	10	
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±20V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=25V , I_D=62A	---	42	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	3.3	---	Ω
Q_g	Total Gate Charge	I_D=62A V_{DS}=48V V_{GS}=10V	---	71	---	nC
Q_{gs}	Gate-Source Charge		---	16	---	
Q_{gd}	Gate-Drain Charge		---	28	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DS}=30V I_D=62A R_G=4.7Ω,V_{GS}=10V	---	16	---	ns
T_r	Rise Time		---	57	---	
$T_{d(off)}$	Turn-Off Delay Time		---	85	---	
T_f	Fall Time		---	71	---	
C_{iss}	Input Capacitance	V_{DS}=25V , V_{GS}=0V , f=1MHz	---	2422	---	pF
C_{oss}	Output Capacitance		---	522	---	
C_{rss}	Reverse Transfer Capacitance		---	166	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current[1]	V_G=V_D=0V , Force Current	---	---	100	A
I_{SM}	Pulsed Source Current[2]		---	---	300	A
V_{SD}	Diode Forward Voltage[2]	V_{GS}=0V , I_S=62A , T_J=25℃	---	---	1.5	V

Note :
1.The data tested by surface mounted on a 1 inch^2 FR-4 board with 2OZ copper.
2.The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%
3.The EAS data shows Max. rating . The test condition is V_{DD}=25V,V_{GS}=10V,L=0.1mH,I_{AS}=62A