

General Description

The 3205A 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.

Features

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

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	55	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_C=25^\circ C$	Continuous Drain Current	110	A
$I_D@T_C=100^\circ C$	Continuous Drain Current	80	A
I_{DM}	Pulsed Drain Current ¹	330	A
EAS	Single Pulse Avalanche Energy ²	850	mJ
I_{AS}	Avalanche Current	62	A
$P_D@T_C=25^\circ C$	Total Power Dissipation	200	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	---	62.5	°C/W
$R_{\theta JC}$	Thermal Resistance Junction-case	---	0.79	°C/W

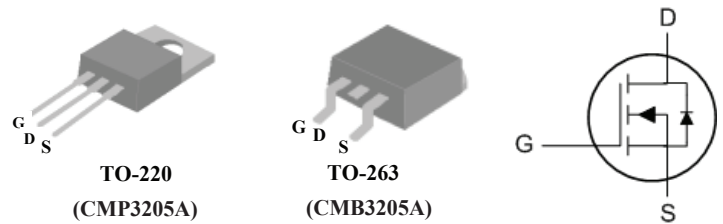
Product Summary

BVDSS	RDSON	ID
55V	8.0mΩ	110A

Applications

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

TO220 / TO263 Pin Configuration



N-Channel Enhancement Mode Field Effect Transistor

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	55	---	---	V
$\Delta BV_{DSS}/\Delta T_J$	BVDSS Temperature Coefficient	Reference to $25\text{ }^\circ\text{C}, I_D=1mA$	---	0.057	---	V/ $^\circ\text{C}$
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V, I_D=62A$	---	6.5	8.0	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	$V_{DS}=\text{Max rating}, V_{GS}=0V$	---	---	1	uA
		$V_{DS}=\text{Max rating}, V_{GS}=0V@150\text{ }^\circ\text{C}$	---	---	10	
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=25V, I_D=62A$	---	42	---	S
Q_g	Total Gate Charge	$I_D=62A$	---	71	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=44V$	---	16	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	28	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=28V$ $I_D=62A$ $R_G=4.7\Omega, V_{GS}=10V$	---	16	---	ns
T_r	Rise Time		---	98	---	
$T_{d(off)}$	Turn-Off Delay Time		---	65	---	
T_f	Fall Time		---	81	---	
C_{iss}	Input Capacitance	$V_{DS}=25V, V_{GS}=0V, f=1MHz$	---	3200	---	pF
C_{oss}	Output Capacitance		---	745	---	
C_{rss}	Reverse Transfer Capacitance		---	180	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	110	A
I_{SM}	Pulsed Source Current ¹		---	---	330	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V, I_S=62A, T_J=25\text{ }^\circ\text{C}$	---	---	1.3	V

Note :

1.Repetitive rating; pulse width limited by max. junction temperature.

2.The EAS data shows Max. rating . The test condition is $V_{DD}=25V, V_{GS}=10V, L=0.1mH, I_{AS}=62A$