

N-Channel Enhancement Mode Field Effect Transistor

General Description

The 3205 uses advanced trench technology and design to provide excellent $R_{DS(ON)}$. It can be used in a wide variety of applications.

Features

- Low On-Resistance
- 100% avalanche tested
- RoHS Compliant

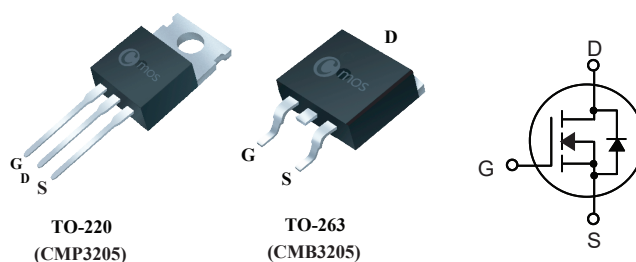
Product Summary

BVDSS	RDSON	ID
65V	6.8mΩ	100A

Applications

- Uninterruptible Power Supplies
- Motor control and drive
- Battery management

TO-220/263 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	65	V
V_{GS}	Gate-Source Voltage	±25	V
$I_D@T_C=25^{\circ}C$	Continuous Drain Current	100	A
$I_D@T_C=100^{\circ}C$	Continuous Drain Current	60	A
I_{DM}	Pulsed Drain Current	400	A
EAS	Single Pulse Avalanche Energy ¹	578	mJ
$P_D@T_C=25^{\circ}C$	Total Power Dissipation	150	W
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient(min. footprint)	---	91	°C/W
$R_{\theta JC}$	Thermal Resistance Junction-case	---	0.83	°C/W

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	65	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=40A$	---	6.1	6.8	m Ω
		$V_{GS}=6V$, $I_D=30A$	---	6.8	8.5	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	2	---	4	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=65V$, $V_{GS}=0V$	---	---	1	μA
		$V_{DS}=65V$, $V_{GS}=0V@150^{\circ}\text{C}$	---	---	100	
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 25V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=10V$, $I_D=20A$	---	18	---	S
Q_g	Total Gate Charge	$I_D=40A$	---	100	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=32V$	---	26	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	32	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=32V$ $V_{GS}=10V$ $R_{G_ext}=2.7\Omega$	---	18	---	ns
T_r	Rise Time		---	70	---	
$T_{d(off)}$	Turn-Off Delay Time		---	51	---	
T_f	Fall Time		---	62	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	5100	---	pF
C_{oss}	Output Capacitance		---	450	---	
C_{rss}	Reverse Transfer Capacitance		---	380	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	100	A
I_{SM}	Pulsed Source Current ¹		---	---	400	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=20A$, $T_J=25^{\circ}\text{C}$	---	0.82	1.3	V

Note :

1. The EAS data shows Max. rating . The test condition is $V_{DD}=30V$, $V_{GS}=10V$, $L=1\text{mH}$, $I_{AS}=34A$.

This product has been designed and qualified for the consumer market.

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Cmos reserves the right to improve product design ,functions and reliability without notice.

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Typical Characteristics

