

General Description

The 3205A uses advanced trench technology and design to provide excellent RDS(ON). It can be used in a wide variety of applications.

Features

- Fast switching
- 100% avalanche tested
- 175°C Operating Temperature
- RoHS Compliant

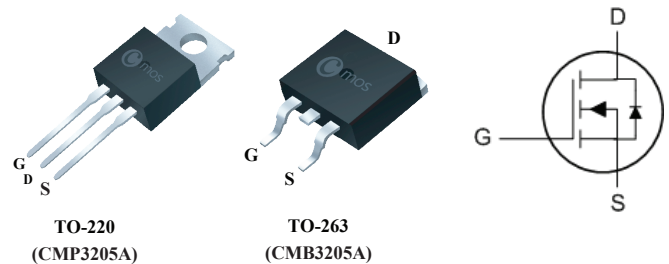
Product Summary

| BVDSS | RDSON | ID |
|-------|-------|------|
| 55V | 8.5mΩ | 110A |

Applications

- LED power controller
- DC-DC & DC-AC converters
- High current, high speed switching
- Solenoid and relay drivers
- Motor control, Audio amplifiers

TO-220/263 Pin Configuration



Absolute Maximum Ratings

| Symbol | Parameter | Rating | Units |
|-----------------------------|--|------------|-------|
| V_{DS} | Drain-Source Voltage | 55 | V |
| V_{GS} | Gate-Source Voltage | ±20 | V |
| $I_D@T_C=25^\circ\text{C}$ | Continuous Drain Current | 110 | A |
| $I_D@T_C=100^\circ\text{C}$ | Continuous Drain Current | 80 | A |
| I_{DM} | Pulsed Drain Current ¹ | 330 | A |
| EAS | Single Pulse Avalanche Energy ² | 676 | mJ |
| $P_D@T_C=25^\circ\text{C}$ | 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 |

N-Channel Enhancement Mode Field Effect Transistor

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

| Symbol | Parameter | Conditions | Min. | Typ. | Max. | Unit |
|--------------|-----------------------------------|--|------|------|-----------|------------|
| BV_{DSS} | Drain-Source Breakdown Voltage | $V_{GS}=0V$, $I_D=250\mu A$ | 55 | --- | --- | V |
| $R_{DS(ON)}$ | Static Drain-Source On-Resistance | $V_{GS}=10V$, $I_D=62A$ | --- | --- | 8.5 | 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 | μA |
| | | $V_{DS}=\text{Max rating}$, $V_{GS}=0V@150^{\circ}\text{C}$ | --- | --- | 10 | |
| I_{GSS} | Gate-Source Leakage Current | $V_{GS}=\pm 20V$, $V_{DS}=0V$ | --- | --- | ± 100 | nA |
| g_{fs} | Forward Transconductance | $V_{DS}=20V$, $I_D=40A$ | --- | 32 | --- | 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 | $V_{DS}=25V$, $V_{GS}=0V$, $f=1\text{MHz}$ | --- | 4000 | --- | 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 | $V_{GS}=0V$, $I_S=30A$, $T_J=25^{\circ}\text{C}$ | --- | --- | 1.3 | V |

Note :

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

2.The test condition is $V_{DD}=30V$, $V_{GS}=10V$, $L=0.5\text{mH}$, $I_{AS}=52A$

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