

P-Channel Enhancement Mode MOSFET

General Description

The 70P06 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
- Lower On-resistance
- RoHS Compliant

Absolute Maximum Ratings

| Symbol | Parameter | Rating | Units |
|-----------------------|--------------------------------------|------------|------------|
| V_{DS} | Drain-Source Voltage | -60 | V |
| V_{GS} | Gate-Source Voltage | ± 20 | V |
| $I_D@T_C=25^\circ C$ | Continuous Drain Current | -70 | A |
| $I_D@T_C=100^\circ C$ | Continuous Drain Current | -56 | A |
| I_{DM} | Pulsed Drain Current | -210 | A |
| EAS | Single Pulse Avalanche Energy | 435 | mJ |
| $P_D@T_C=25^\circ C$ | Total Power Dissipation | 130 | W |
| T_{STG} | Storage Temperature Range | -55 to 175 | $^\circ C$ |
| T_J | Operating Junction Temperature Range | -55 to 175 | $^\circ C$ |

Thermal Data

| Symbol | Parameter | Typ. | Max. | Unit |
|-----------------|-------------------------------------|------|------|--------------|
| $R_{\theta JA}$ | Thermal Resistance Junction-ambient | --- | 62.5 | $^\circ C/W$ |
| $R_{\theta JC}$ | Thermal Resistance Junction-case | --- | 0.95 | $^\circ C/W$ |

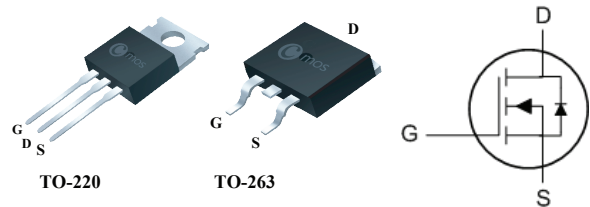
Product Summary

| BVDSS | RDSON | ID |
|-------|--------------|------|
| -60V | 15m Ω | -70A |

Applications

- Inverters
- Motor drive
- DC / DC converter

TO-220 Pin Configuration



| Type | Package | Marking |
|----------|---------|----------|
| CMP70P06 | TO-220 | CMP70P06 |
| CMB70P06 | TO-263 | CMB70P06 |

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

| Symbol | Parameter | Conditions | Min. | Typ. | Max. | Unit |
|--------------|-----------------------------------|-----------------------------------------|------|------|-----------|------------|
| BV_{DSS} | Drain-Source Breakdown Voltage | $V_{GS}=0V, I_D=-250\mu A$ | -60 | --- | --- | V |
| $R_{DS(ON)}$ | Static Drain-Source On-Resistance | $V_{GS}=-10V, I_D=-20A$ | --- | --- | 15 | m Ω |
| $R_{DS(ON)}$ | Static Drain-Source On-Resistance | $V_{GS}=-4.5V, I_D=-10A$ | --- | --- | 24 | m Ω |
| $V_{GS(th)}$ | Gate Threshold Voltage | $V_{GS}=V_{DS}, I_D=-250\mu A$ | -1 | --- | -3 | V |
| I_{DSS} | Drain-Source Leakage Current | $V_{DS}=-55V, V_{GS}=0V$ | --- | --- | 1 | μA |
| I_{GSS} | Gate-Source Leakage Current | $V_{GS}=\pm 20V, V_{DS}=0V$ | --- | --- | ± 100 | nA |
| gfs | Forward Transconductance | $V_{DS}=-5V, I_D=-15A$ | --- | 21 | --- | S |
| R_g | Gate Resistance | $V_{DS}=0V, V_{GS}=0V, f=1\text{MHz}$ | --- | 34 | --- | Ω |
| Q_g | Total Gate Charge | $I_D=-25A$ | --- | 89 | --- | nC |
| Q_{gs} | Gate-Source Charge | $V_{DS}=-30V$ | --- | 13 | --- | |
| Q_{gd} | Gate-Drain Charge | $V_{GS}=-10V$ | --- | 20 | --- | |
| $T_{d(on)}$ | Turn-On Delay Time | $V_{DD}=-30V, I_{DS}=-1A$ | --- | 16 | --- | ns |
| T_r | Rise Time | $R_L=30\Omega$ | --- | 12 | --- | |
| $T_{d(off)}$ | Turn-Off Delay Time | $R_G=6\Omega$ | --- | 120 | --- | |
| T_f | Fall Time | $V_{GEN}=-10V$ | --- | 61 | --- | |
| C_{iss} | Input Capacitance | $V_{DS}=-30V, V_{GS}=0V, f=1\text{MHz}$ | --- | 5800 | --- | pF |
| C_{oss} | Output Capacitance | | --- | 495 | --- | |
| C_{rss} | Reverse Transfer Capacitance | | --- | 281 | --- | |

Diode Characteristics

| Symbol | Parameter | Conditions | Min. | Typ. | Max. | Unit |
|----------|---------------------------|-----------------------------------------------|------|------|------|------|
| I_S | Continuous Source Current | $V_G=V_D=0V, \text{Force Current}$ | --- | --- | -70 | A |
| I_{SM} | Pulsed Source Current | | --- | --- | -210 | A |
| V_{SD} | Diode Forward Voltage | $V_{GS}=0V, I_S=-10A, T_J=25^{\circ}\text{C}$ | --- | --- | -1.2 | V |

Note :

This product has been designed and qualified for the consumer market.
 Cmos assumes no liability for customers' product design or applications.
 Cmos reserves the right to improve product design, functions and reliability without notice.