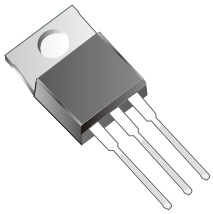
# MOSFET

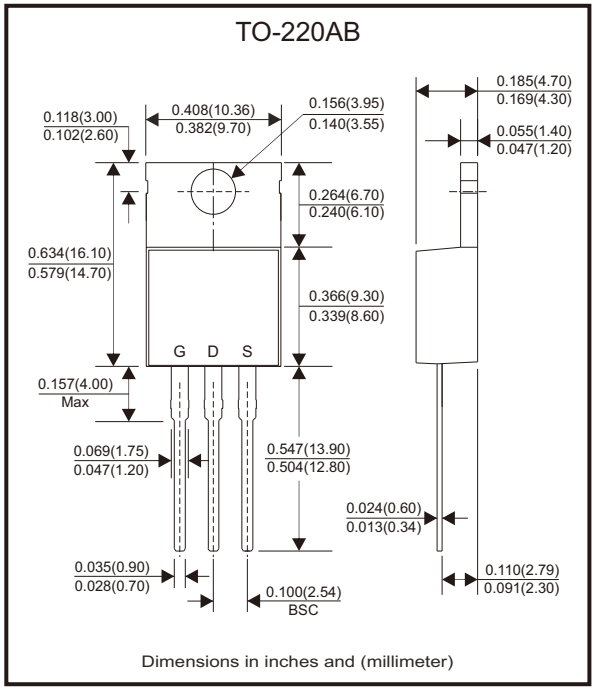
# CMS75P06CT-HF

## P-Channel
## RoHS Device
## Halogen Free



## Features

- Advanced DMOS trench technology.
- Suit for -4.5V gate drive applications.
- Green device available.
- Fast switching.
- 100% EAS guaranteed.

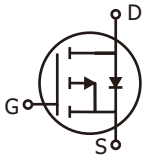



## Mechanical data

- Case: TO-220AB, molded plastic.

## Circuit Diagram

- G : Gate
- S : Source
- D : Drain




## Maximum Ratings

| Parameter | Conditions | Symbol | Value | Unit |
|---|---|---|---|---|
| Drain-source voltage | | $V_{DS}$ | -60 | V |
| Gate-source voltage | | $V_{GS}$ | ±20 | V |
| Continuous drain current (Note 1) | $T_C$ = 25°C | $I_D$ | -75 | A |
| | $T_C$ = 100°C | $I_D$ | -47.5 | |
| Pulsed drain current (Note 1, 2) | | $I_{DM}$ | -300 | A |
| Total power dissipation (Note 4) | $T_C$ = 25°C | $P_D$ | 183 | W |
| | $T_A$ = 25°C | $P_D$ | 2 | |
| Single pulse avalanche energy, L=0.1mH (Note 3) | | $E_{AS}$ | 320 | mJ |
| Single pulse avalanche current, L=0.1mH (Note 3) | | $I_{AS}$ | -80 | A |
| Operating junction and storage temperature range | | $T_J$, $T_{STG}$ | -55 to +150 | °C |
| Thermal resistance junction-ambient (Note 1) | Steady state | $R_{\theta JA}$ | 62.5 | °C/W |
| Thermal resistance junction-case (Note 1) | Steady state | $R_{\theta JC}$ | 0.68 | °C/W |

## Electrical Characteristics (at $T_J$=25°C unless otherwise noted)

| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Drain-source breakdown voltage | $BV_{DSS}$ | $V_{GS}$ = 0V, $I_D$ = -250μA | -60 | | | V |
| Gate threshold voltage | $V_{GS(th)}$ | $V_{DS}$ = $V_{GS}$, $I_D$ = -250μA | -1.2 | -1.6 | -2.5 | |
| Gate-source leakage current | $I_{GSS}$ | $V_{GS}$ = ±20V | | | ±100 | nA |
| Drain-source leakage current ($T_J$=25°C) | $I_{DSS}$ | $V_{DS}$ = -60V, $V_{GS}$ = 0V | | | -1 | μA |
| Drain-source leakage current ($T_J$=125°C) | | $V_{DS}$ = -48V, $V_{GS}$ = 0V | | | -10 | |
| Static drain-source on-resistance (Note 2) | $R_{DS(on)}$ | $V_{GS}$ = -10V, $I_D$ = -30A | | | 9.5 | mΩ |
| | | $V_{GS}$ = -4.5V, $I_D$ = -20A | | | 12.5 | |
| Total gate charge (Note 2) | $Q_g$ | $I_D$ = -5A, $V_{DS}$ = -48V, $V_{GS}$ = -10V | | 141 | | nC |
| Gate-source charge | $Q_{gs}$ | | | 17 | | |
| Gate-drain ("miller") charge | $Q_{gd}$ | | | 28.6 | | |
| Turn-on delay time (Note 2) | $t_{d(on)}$ | $V_{DD}$ = -48V, $I_D$ = -1A<br>$V_{GS}$ = -10V , $R_G$ = 6Ω | | 70 | | nS |
| Rise time | $t_r$ | | | 205 | | |
| Turn-off delay time | $t_{d(off)}$ | | | 402 | | |
| Fall time | $t_f$ | | | 197 | | |
| Input capacitance | $C_{iss}$ | $V_{GS}$ = 0V, $V_{DS}$ = -25V, f = 1MHz | | 8620 | | pF |
| Output capacitance | $C_{oss}$ | | | 486 | | |
| Reverse transfer capacitance | $C_{rss}$ | | | 288 | | |
| **Source-drain diode** | | | | | | |
| Diode forward voltage (Note 2) | $V_{SD}$ | $I_S$ = -30A, $V_{GS}$ = 0V, $T_J$=25°C | | | -1.2 | V |
| Continuous source current (Note 1, 6) | $I_S$ | $V_G$ = $V_D$ = 0V, Force current | | | -75 | A |
| Pulsed source current (Note 2, 6) | $I_{SM}$ | | | | -150 | A |
| **Guaranteed avalanche characteristics** | | | | | | |
| Single pulse avalanche energy (Note 5) | EAS | $V_{DD}$ = -50V, L = 0.1mH, $I_{AS}$ = -40A | 80 | | | mJ |

Notes: 1. The data tested by surface mounted on a 1 inch² FR-4 board with 2 oz copper.
2. The data tested by pulsed, pulse width ≤ 300μs, duty cycle ≤ 2%.
3. The EAS data shows max. rating. The test condition is VDD=-50V, VGS=-10V, L=0.1mH, IAS=-80A.
4. The power dissipation is limited by 150°C junction temperature.
5. The min. value is 100% EAS tested guarantee.
6. The data is theoretically the same as ID and IDM, in real applications, should be limited by total power dissipation.

## Rating and Characteristic Curves (CMS75P06CT-HF)

Fig.1 - Drain Current vs. $T_C$

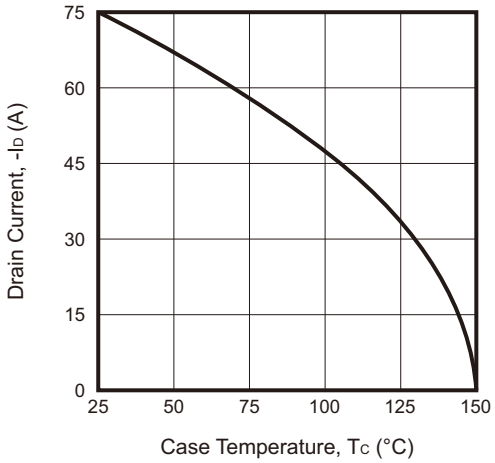



Fig.2 - Gate Charge Characteristics

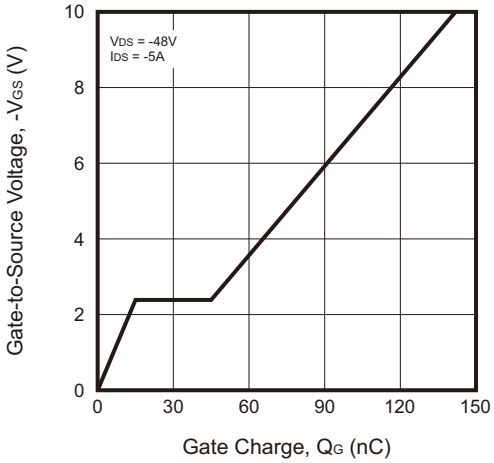



Fig.3 - Normalized $V_{GS(th)}$ vs. $T_J$

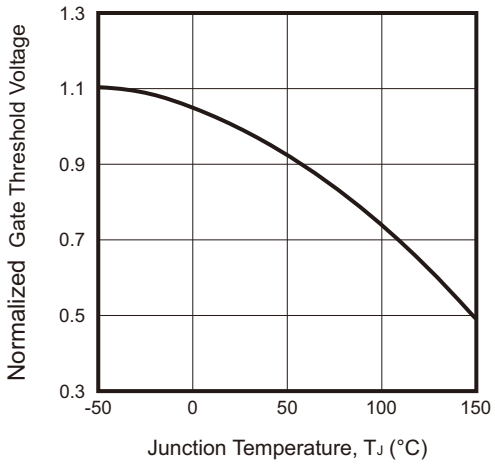



Fig.4 - Normalized $R_{DS(ON)}$ vs. $T_J$

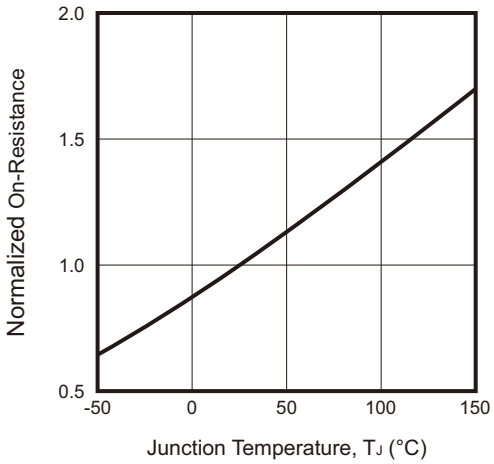



Fig.5 - Safe Operating Area

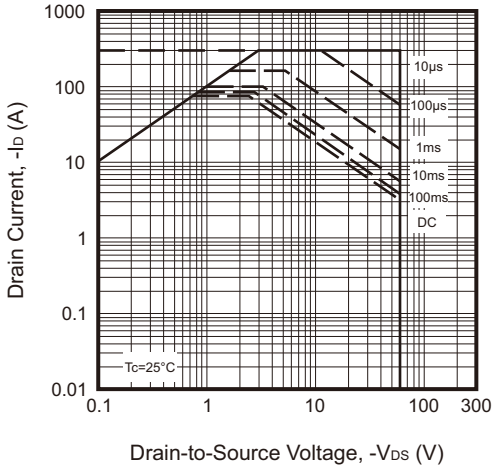
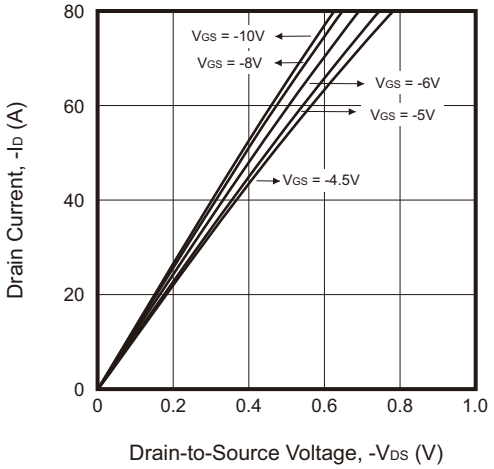
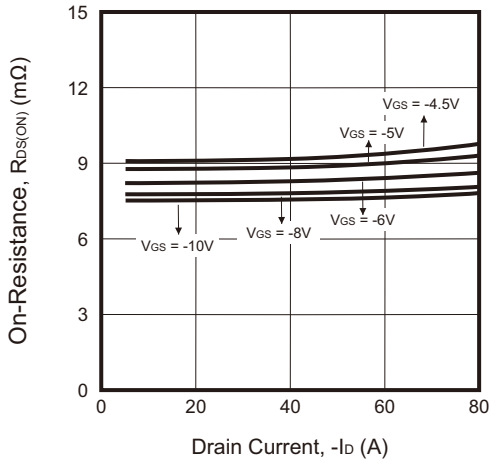



Fig.6 - Typical Output Characteristics



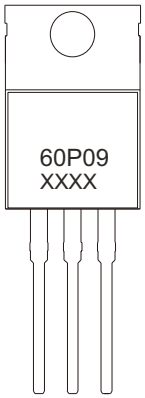
## Rating and Characteristic Curves (CMS75P06CT-HF)

Fig.7 - On-Resistance vs. Drain Current




## Marking Code

| Part Number | Marking Code |
|---|---|
| CMS75P06CT-HF | 60P09 |




XXXX = Control code

## Standard Packaging

| Case Type | TUBE PACK |
|---|---|
| | TUBE (pcs) |
| TO-220AB | 50 |

# X-ON Electronics

Largest Supplier of Electrical and Electronic Components

***Click to view similar products for*** MOSFET ***category:***

***Click to view products by*** Comchip ***manufacturer:***

Other Similar products are found below :

614233C 648584F D2003UK MCH3443-TL-E MCH6422-TL-E FDPF9N50NZ FW216A-TL-2W FW231A-TL-E APT5010JVR NTNS3A92PZT5G IRF100S201 JANTX2N5237 2SK2464-TL-E 2SK3818-DL-E FCA20N60_F109 FDZ595PZ STD6600NT4G FQD4P40TM_AM002 FSS804-TL-E FW217A-TL-2W 2SJ277-DL-E 2SK1691-DL-E 2SK2545(Q,T) D2294UK 405094E 423220D MCH6646-TL-E TPCC8103,L1Q(CM 367-8430-0972-503 VN1206L 424134F 026935X 051075F SBVS138LT1G 614234A 715780A NTNS3166NZT5G 751625C 873612G IPS70R2K0CEAKMA1 RJK60S3DPP-E0#T2 RJK60S5DPK-M0#T0 APT8015JVFR APT5010JVFR APT12031JFLL APT12040JVR DMN3404LQ-7 NTE6400 NVC3S5A51PLZT1G JANTX2N6796U