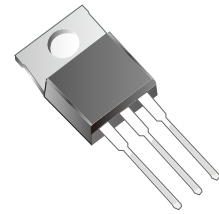


CMS61P06CT-HF

P-Channel
RoHS Device
Halogen Free



Features

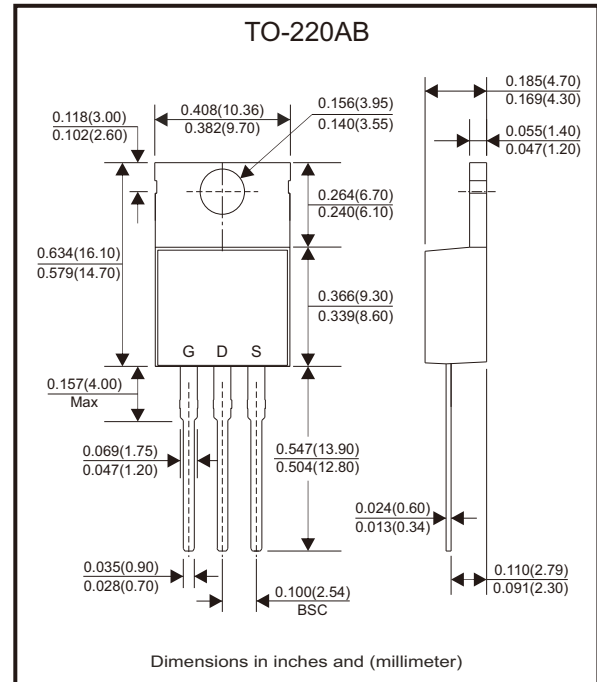
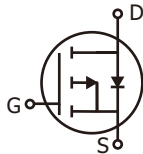
- Advanced DMOS trench technology.
- Improved dv/dt capability.
- Green device available.
- Fast switching.
- 100% EAS guaranteed.

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)	$I_D @ T_C = 25^\circ C$		-61	A
	$I_D @ T_C = 100^\circ C$		-38.6	
Pulsed drain current (Note 1, 2)		I_{DM}	-244	A
Total power dissipation (Note 4)	$P_D @ T_C = 25^\circ C$		171	W
	$P_D @ T_A = 25^\circ C$		2	
Single pulse avalanche energy, L=0.1mH (Note 3)		E_{AS}	245	mJ
Single pulse avalanche current, L=0.1mH (Note 3)		I_{AS}	-70	A
Operating junction and storage temperature range		T_J, T_{STG}	-55 to +150	$^\circ C$
Thermal resistance junction-ambient (Note 1)	Steady state	$R_{\theta JA}$	62.5	$^\circ C/W$
Thermal resistance junction-case (Note 1)	Steady state	$R_{\theta JC}$	0.73	$^\circ C/W$

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	-2.0	-3.0	-4.0	
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 =85°C)		V _{DS} = -48V, V _{GS} = 0V			-10	
Static drain-source on-resistance (Note 2)	R _{DS(on)}	V _{GS} = -10V, I _D = -30A			22	mΩ
		V _{GS} = -6V, I _D = -10A			40	
Total gate charge (Note 2)	Q _g	I _D = -10A, V _{DS} = -48V, V _{GS} = -10V		37.2		nC
Gate-source charge	Q _{gs}			10.4		
Gate-drain ("miller") charge	Q _{gd}			10.5		
Turn-on delay time (Note 2)	t _{d(on)}	V _{DD} = -48V, I _D = -5A V _{GS} = -10V, R _G = 25Ω		23		nS
Rise time	t _r			76		
Turn-off delay time	t _{d(off)}			113		
Fall time	t _f			29		
Input capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = -25V, f = 1MHz		2165		pF
Output capacitance	C _{oss}			318		
Reverse transfer capacitance	C _{rss}			102		
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			-61	A
Pulsed source current (Note 2, 6)	I _{SM}				-122	A
Guaranteed avalanche characteristics						
Single pulse avalanche energy (Note 5)	EAS	V _{DD} = -30V, L=0.1mH, I _{AS} = -30A	45			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 V_{DD}=-30V, V_{GS}=-10V, L=0.1mH, I_{AS}=-70A.
 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 I_D and I_{DM}, in real applications, should be limited by total power dissipation.

Rating and Characteristic Curves (CMS61P06CT-HF)

Fig.1 - Drain Current vs. T_c

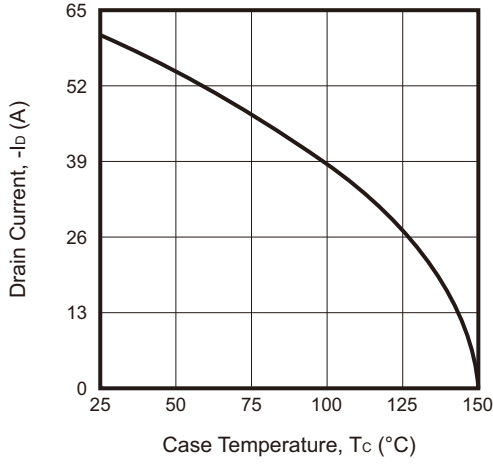


Fig.2 - Gate Charge Characteristics

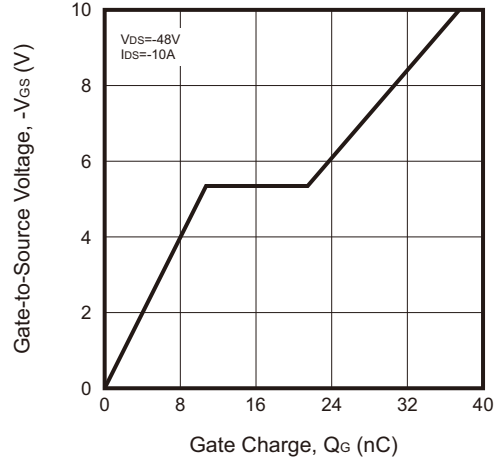


Fig.3 - Normalized $V_{GS(th)}$ vs. T_J

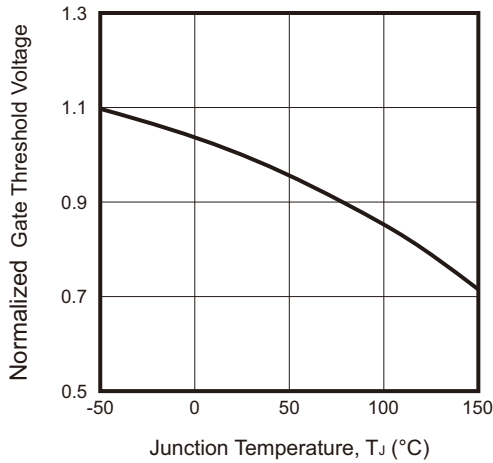


Fig.4 - Normalized $R_{DS(on)}$ vs. T_J

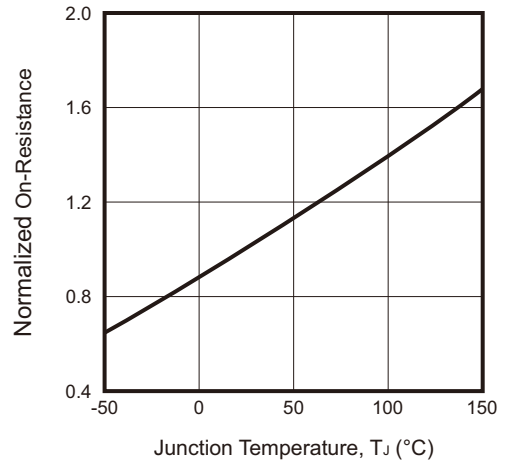
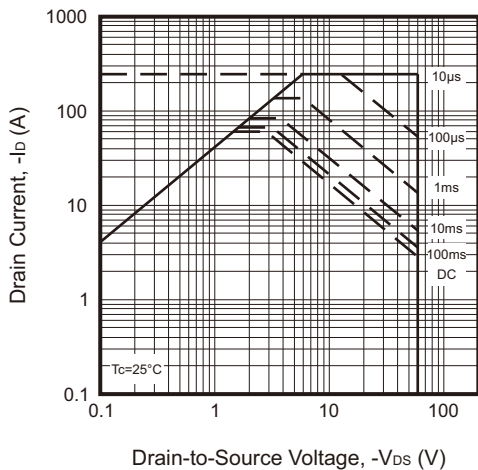
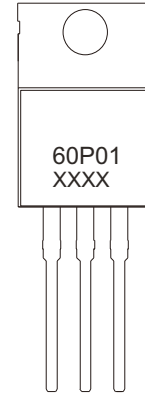


Fig.5 - Safe Operating Area



Marking Code

Part Number	Marking Code
CMS61P06CT-HF	60P01



XXXX = Control code

Standard Packaging

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