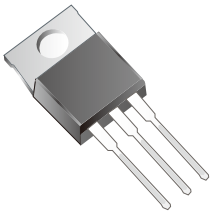
MOSFET

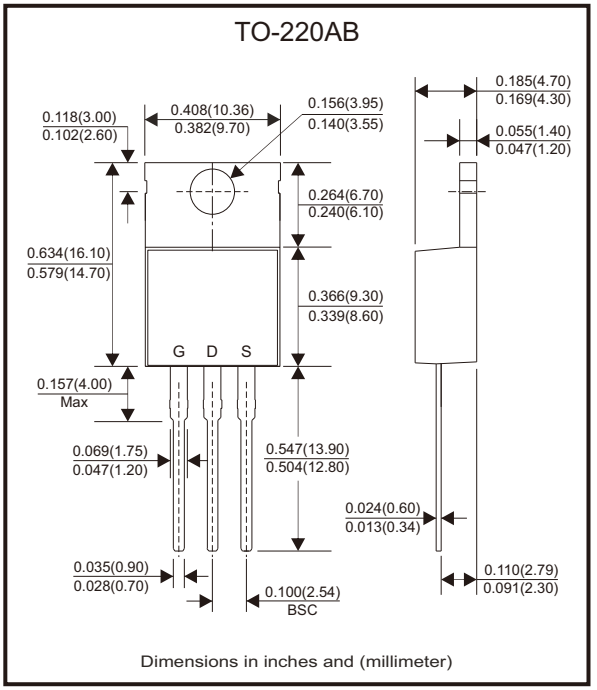
CMS55N06CT-HF

N-Channel
RoHS Device
Halogen Free



Features

- Low On-resistance.
- Improved dv/dt capability.
- Green device available.
- Fast switching.
- 100% EAS guaranteed.

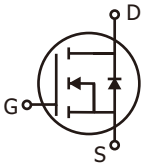


Mechanical data

- 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°C		55	A
	I_D @ T_C = 100°C		35	
Pulsed drain current (Note 1, 2)		I_{DM}	220	A
Total power dissipation (Note 4)	P_D @ T_C = 25°C		96	W
	P_D @ T_A = 25°C		2	
Single pulse avalanche energy, L=0.1mH (Note 3)		E_{AS}	61	mJ
Single pulse avalanche current, L=0.1mH (Note 3)		I_{AS}	35	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	$R_{\theta JC}$	1.3	°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	
Forward transconductance	g_{fs}	V_{DS} = 10V, I_D = 6A		11.5		S
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	$R_{DS(on)}$	V_{GS} = 10V, I_D = 30A		10.5	12	mΩ
		V_{GS} = 4.5V, I_D = 15A		12	15	
Total gate charge (Note 2)	Q_g	I_D = 10A, V_{DS} = 30V, V_{GS} = 10V		39.2		nC
Gate-source charge	Q_{gs}			5.9		
Gate-drain ("miller") charge	Q_{gd}			8.8		
Turn-on delay time (Note 2)	$t_{d(on)}$	V_{DS} = 15V, V_{GS} = 10V I_D = 1A, R_G = 6Ω		9.6		nS
Rise time	t_r			28.2		
Turn-off delay time	$t_{d(off)}$			45.3		
Fall time	t_f			10.9		
Input capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 25V, f = 1MHz		2100		pF
Output capacitance	C_{oss}			165		
Reverse transfer capacitance	C_{rss}			80		
Gate resistance	R_g	f = 1MHz		1.6	3.2	Ω
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			55	A
Pulsed source current (Note 2, 6)	I_{SM}				220	A
Guaranteed avalanche characteristics						
Single pulse avalanche energy (Note 5)	EAS	V_{DD} = 25V, L=0.1mH, I_{AS} = 26A	33.8			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=25V, VGS=10V, L=0.1mH, IAS=35A.
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 (CMS55N06CT-HF)

Fig.1 - Drain Current vs. T_C

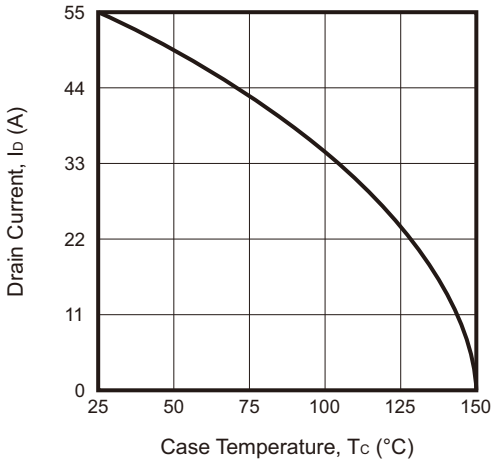


Fig.2 - Gate Charge Characteristics

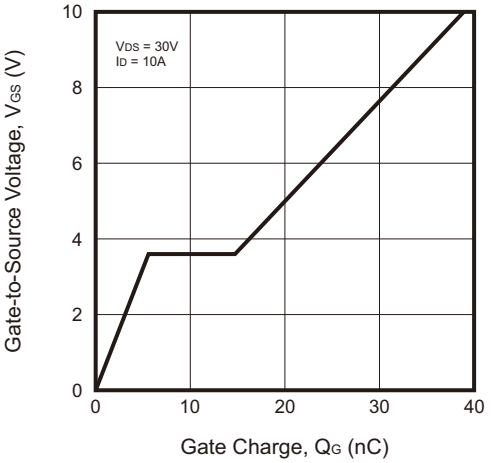


Fig.3 - Normalized $V_{GS(th)}$ vs. T_J

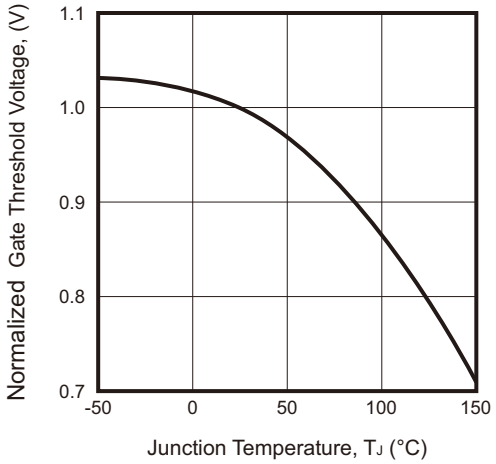


Fig.4 - Normalized $R_{DS(ON)}$ vs. T_J

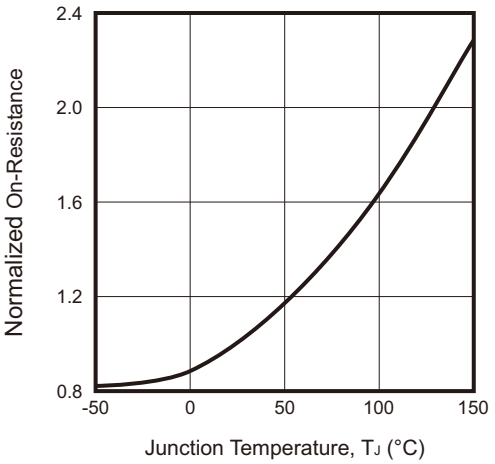
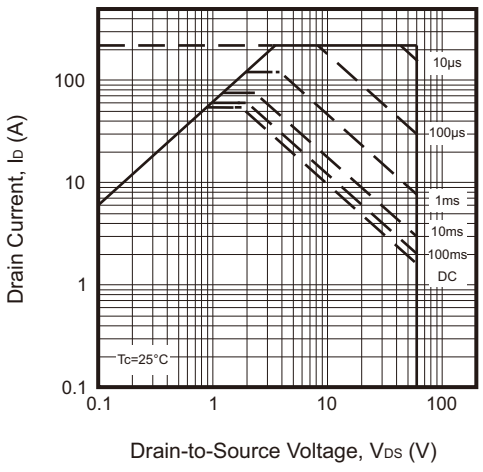
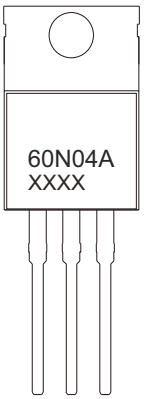


Fig.5 - Safe Operating Area



Marking Code

Part Number	Marking Code
CMS55N06CT-HF	60N04A



XXXX = Control code

Standard Packaging

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