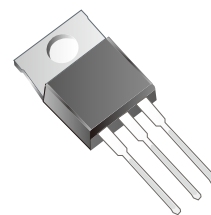


CMS55N06CT-HF

N-Channel

RoHS Device

Halogen Free



Features

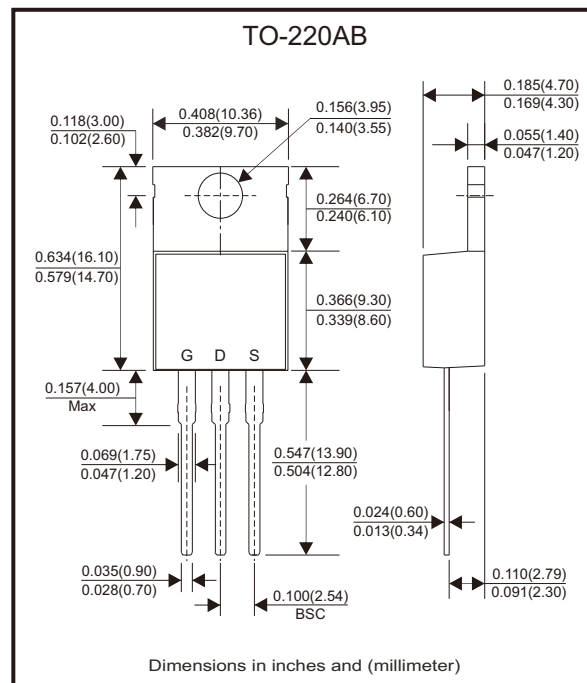
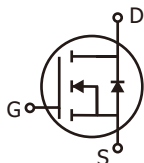
- Low On-resistance.
- Improved dv/dt capability.
- Green device available.
- Fast switching.
- 100% EAS guaranteed.

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)	$I_D @ T_C = 25^\circ C$		55	A
	$I_D @ T_C = 100^\circ C$		35	
Pulsed drain current (Note 1, 2)		I_{DM}	220	A
Total power dissipation (Note 4)	$P_D @ T_C = 25^\circ C$		96	W
	$P_D @ T_A = 25^\circ C$		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	$^\circ C$
Thermal resistance junction-ambient (Note 1)	Steady state	$R_{\theta JA}$	62.5	$^\circ C/W$
Thermal resistance junction-case (Note 1)	Steady state	$R_{\theta JC}$	1.3	$^\circ C/W$

Electrical Characteristics (at $T_J=25^{\circ}\text{C}$ 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 $\leq 300\mu s$, duty cycle $\leq 2\%$.
3. The EAS data shows max. rating. The test condition is $V_{DD}=25V, V_{GS}=10V, L=0.1\text{mH}, I_{AS}=35A$.
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 I_D and I_{DM} , in real applications, should be limited by total power dissipation.

Rating and Characteristic Curves (CMS55N06CT-HF)

Fig.1 - Drain Current vs. T_c

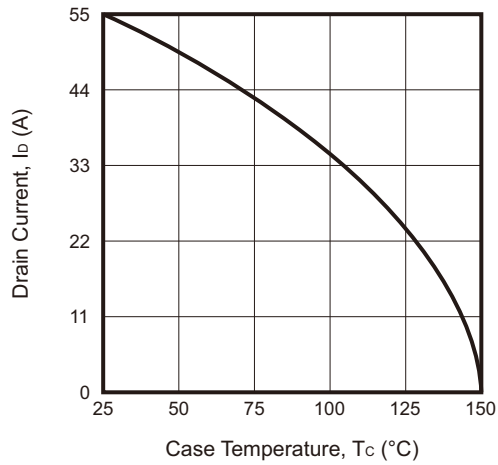


Fig.2 - Gate Charge Characteristics

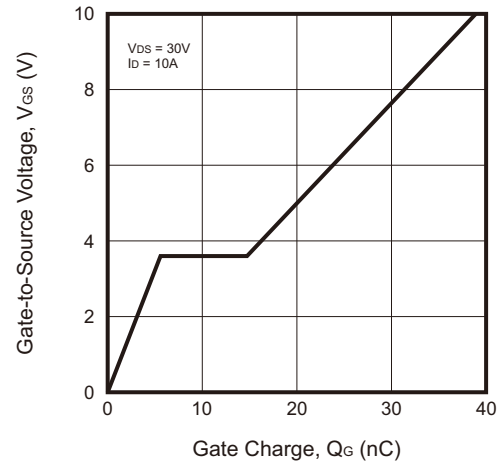


Fig.3 - Normalized $V_{GS(th)}$ vs. T_J

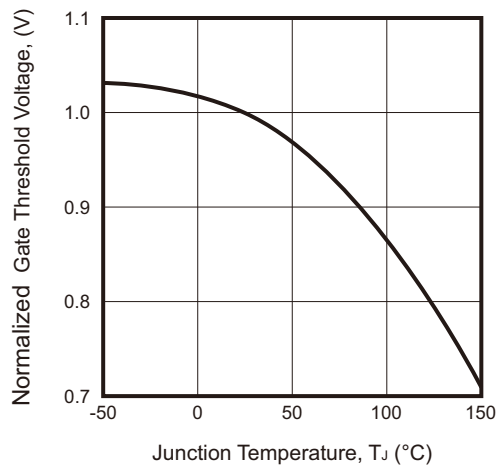


Fig.4 - Normalized $R_{DS(on)}$ vs. T_J

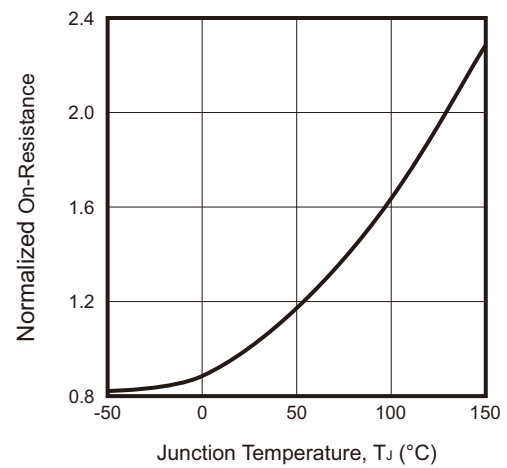
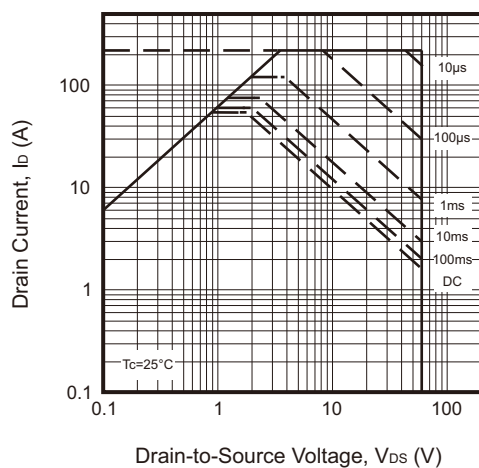
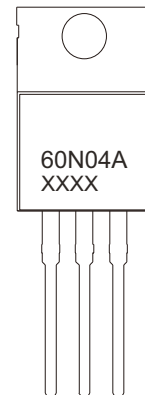


Fig.5 - Safe Operating Area



Marking Code

Part Number	Marking Code
CMS55N06CT-HF	60N04A



XXXX = Control code

Standard Packaging

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

Mouser Electronics

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