

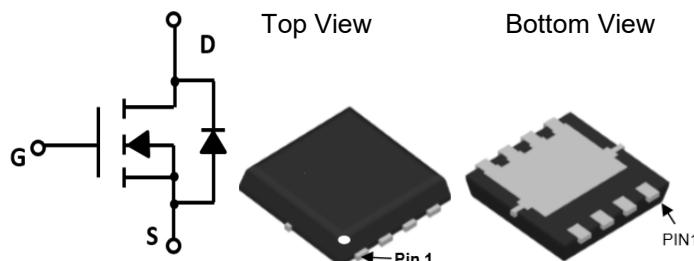
Description

The CM60N10AGF5 is the N-Channel enhancement mode power field effect transistors with high cell density, trench technology. This high density process and design have been optimized switching performance and especially tailored to minimize on-state resistance.

Features

- V_{DS}: 100V
- I_D: 60A
- R_{DS(on)} (@V_{GS}=10V) : < 9.9mΩ
- High density cell design for extremely low R_{DS(on)}
- Excellent on-resistance and DC current capability

Equivalent Circuit and Pin Configuration



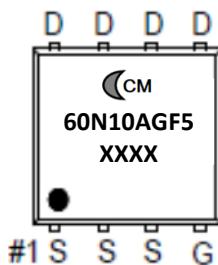
Absolute Maximum Ratings (TA=25 °C unless otherwise noted)

Parameter	Symbol	Maximum	Unit
Drain-source Voltage	V _{DS}	100	V
Gate-source Voltage	V _{GS}	±20	V
Drain Current ⁽¹⁾⁽⁶⁾	I _D	60	A
		38	A
	I _D	10.2	A
		6.5	A
Pulsed Drain Current ⁽³⁾	I _{DM}	240	A
Total Power Dissipation ⁽⁴⁾	P _D	71	W
		2.08	W
Thermal Resistance Junction-to-Ambient ⁽²⁾⁽⁵⁾	R _{θJA}	60	°C/W
Thermal Resistance Junction-to-Case	R _{θJC}	1.75	°C/W
Junction and Storage Temperature Range	T _{J,TSTG}	-55 to +150	°C

Applications

- Battery management
- Power management
- Load switch

Marking Information



Marking Code = CM60N10AGF5

Date Code = XXXX

Ordering Information

Part Number	Packaging	Reel Size
CM60N10AGF5	5000/Tape & Reel	13 inch

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

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BVDSS	V _{GS} =0V, I _D =250μA	100			V
Zero Gate Voltage Drain Current	I _{DSS}	V _D =100V, V _{GS} =0V, T _C =25°C			1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±20V, V _D =0V			±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _D =V _{GS} , I _D =250μA	2.0	4.0		V
Static Drain-Source on-Resistance	R _{D(on)}	V _{GS} =10V, I _D =20A		7.8	9.9	mΩ
Diode Forward Voltage	V _{SD}	I _S =20A, V _{GS} =0V			1.2	V
Maximum Body-Diode Continuous Current	I _S				60	A
Dynamic Parameters						
Input Capacitance	C _{iss}	V _D =50V, V _{GS} =0V, f=1MHz		1760		pF
Output Capacitance	C _{oss}			345		
Reverse Transfer Capacitance	C _{rss}			6.8		
Switching Parameters						
Total Gate Charge	Q _g	V _{GS} =10V, V _D =50V, I _D =25A		28		nC
Gate Source Charge	Q _{gs}			8.8		
Gate Drain Charge	Q _{gd}			8.3		
Turn-on Delay Time	t _{D(on)}	V _{GS} =10V, V _D =30V, R _L =30Ω, I _D =1A, R _{GEN} =6Ω		20		ns
Turn-on Rise Time	t _r			8		
Turn-off Delay Time	t _{D(off)}			30		
Turn-off Fall Time	t _f			65		

Noted: (1) Pulse Test: Pulse Width≤300us,Duty cycle ≤2%.

- (2) The value of R_{θJA} is measured with the device mounted on lin2 FR-4 board with 2oz.Copper,in a still air environment with T_A =25°C. The Power dissipation PDSM is based on R_{θJA} t≤10s and the maximum allowed junction temperature of 150°C.The value in any given application depends on the user's specific board design.
- (3) Single pulse width limited by junction temperature T_{J(MAX)} = 150°C.
- (4) The power dissipation PD is based on T_{J(MAX)} = 150°C,using junction-to-case thermal resistance, and is more useful in setting the upper Dissipation limit for cases where additional heatsinking is used.
- (5) The R_{θJA} is the sum of the thermal impedance from junction to case R_{θJA} and case to ambient.
- (6) The maximum current rating is package limited.

Typical Performance Characteristics

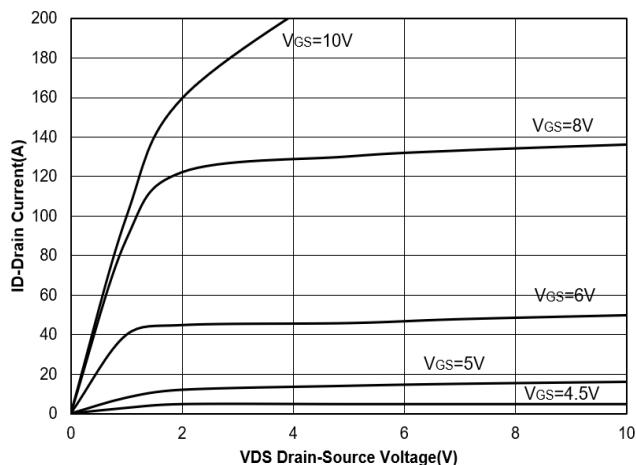


Figure 1. Output Characteristics

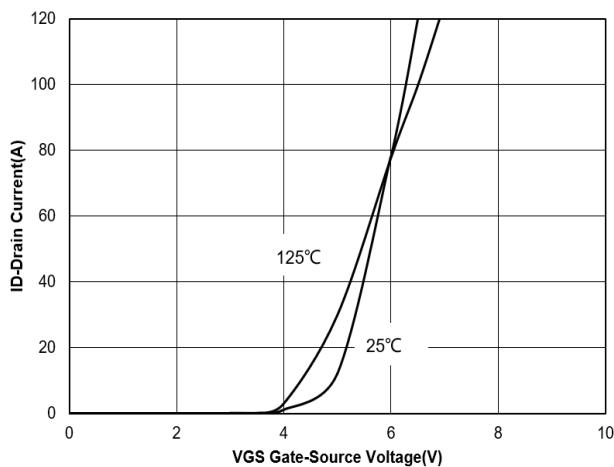


Figure 2. Transfer Characteristics

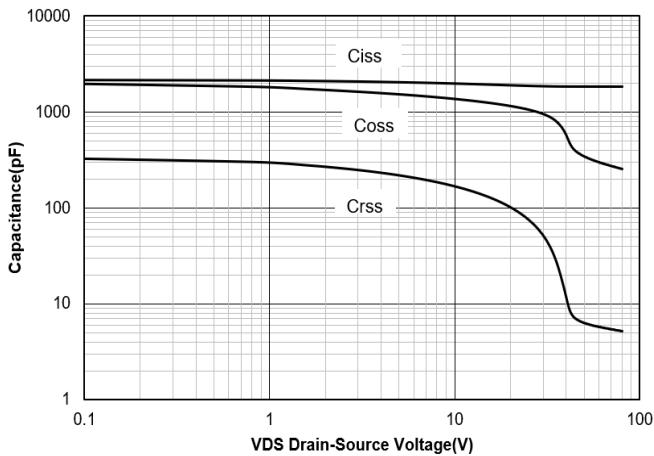


Figure 3. Capacitance Characteristics

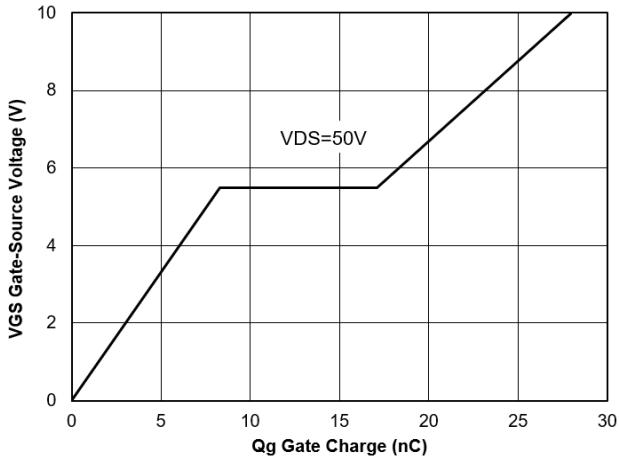


Figure 4. Gate Charge

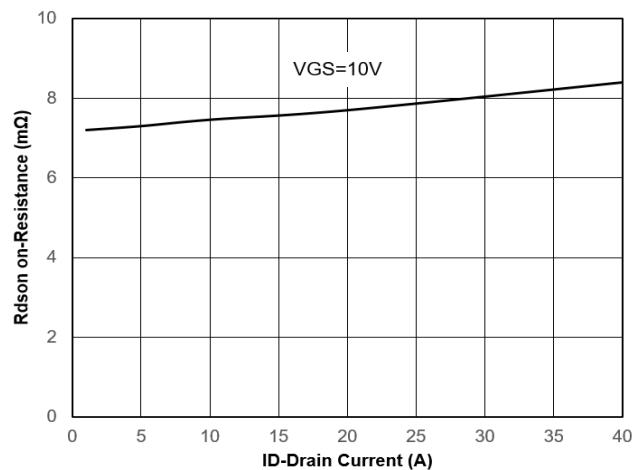


Figure 5. Drain-Source on Resistance

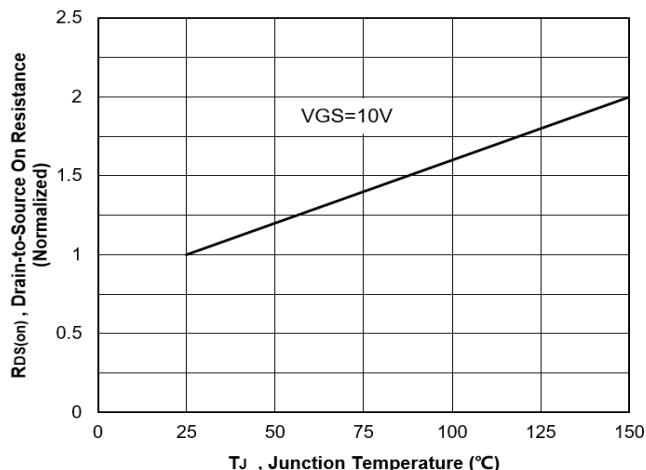
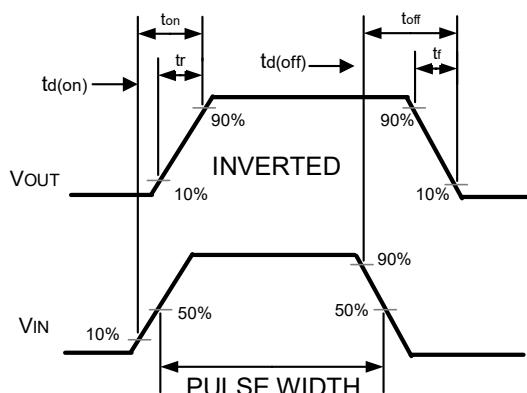
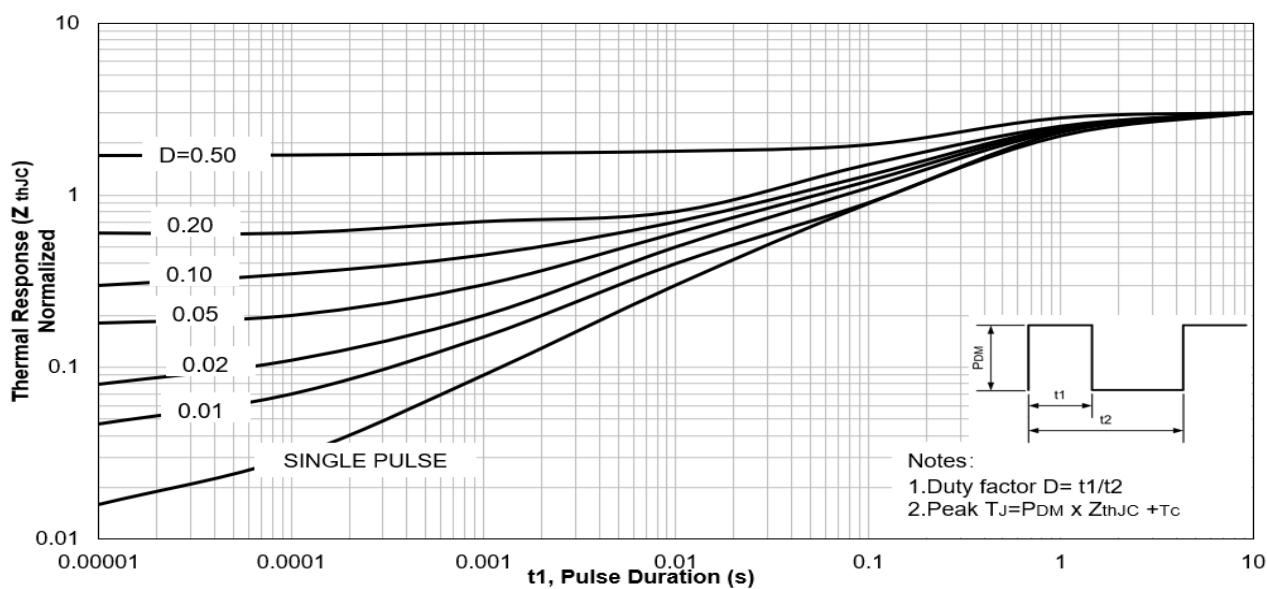
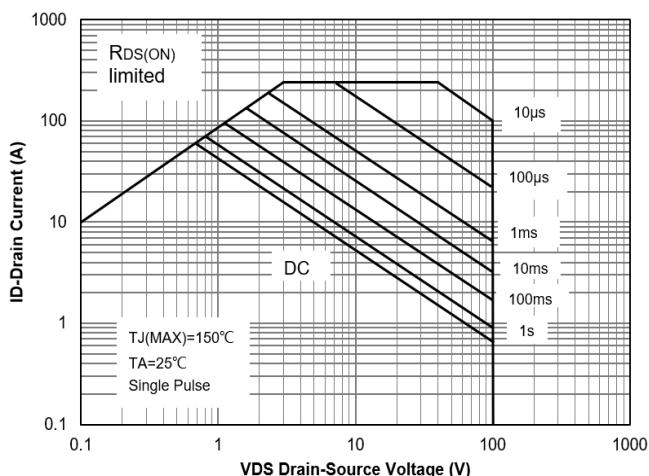
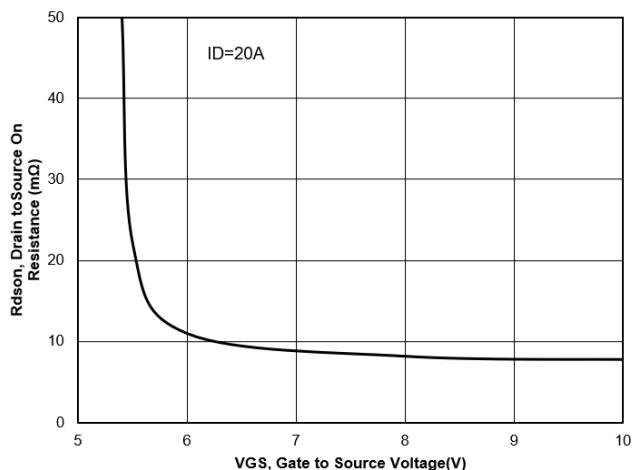
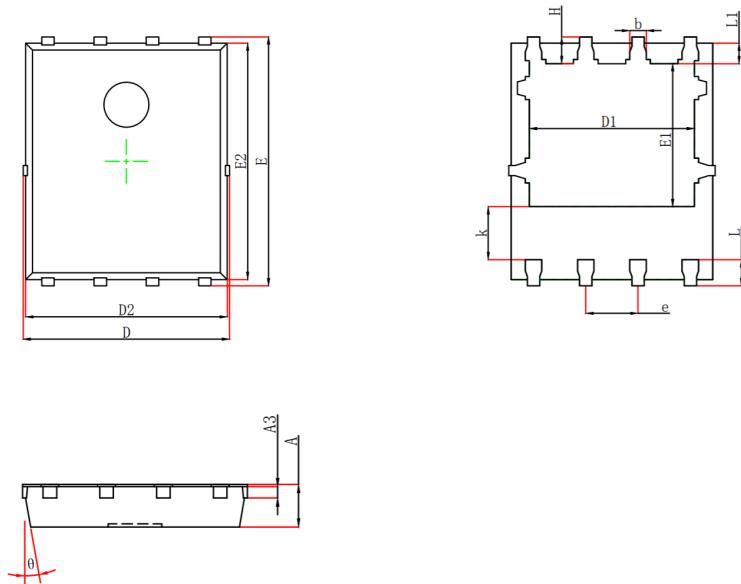


Figure 6. Normalized On-Resistance



DFN 5X6 Package Outline Drawing



Symbol	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.000	0.035	0.039
A3	0.254 REF.		0.010 REF.	
D	4.944	5.096	0.195	0.201
E	5.974	6.126	0.235	0.241
D1	3.910	4.110	0.154	0.162
E1	3.375	3.575	0.133	0.141
D2	4.824	4.976	0.190	0.196
E2	5.674	5.826	0.223	0.229
k	1.190	1.390	0.047	0.055
b	0.350	0.450	0.014	0.018
e	1.270 TYP.		0.050 TYP.	
L	0.559	0.711	0.022	0.028
L1	0.424	0.576	0.017	0.023
H	0.574	0.726	0.023	0.029
θ	10°	12°	10°	12°

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