

### Description

The CM07N65AHB is the N-Channel enhancement mode power field effect transistors with high cell density, high voltage planar technology. This high density process and design have been optimized switching performance and especially tailored to minimize on-state resistance.

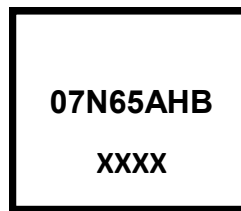
### Features

- $V_{DS}$ : 650V
- $I_D$  (@ $V_{GS}=10V$ ): 7A
- $R_{DS(ON)}$  (@ $V_{GS}=10V$ ): < 1.4 $\Omega$
- High density cell design for extremely low  $R_{DS(ON)}$
- Excellent on-resistance and DC current capability

### Applications

- AC/DC load switch
- SMPS
- Notebooks and Handhelds adapter
- UPS Power

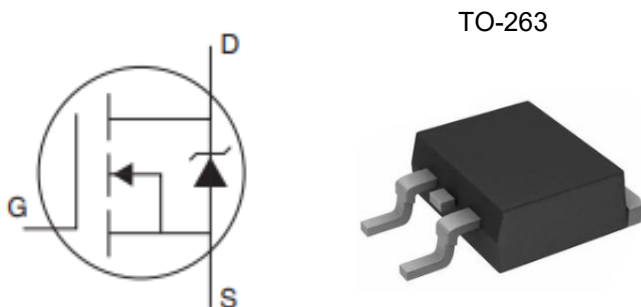
### Marking Information



Marking Code = 07N65AHB

Date Code = XXXX

### Equivalent Circuit and Pin Configuration



### Ordering Information

P/N	Package Type	Packaging
CM07N65AHB	TO-263	Tube

### Absolute Maximum Ratings (T<sub>c</sub>=25 °C unless otherwise noted)

Parameter	Symbol	Maximum	Unit
Drain-source Voltage	$V_{DS}$	650	V
Gate-source Voltage	$V_{GS}$	$\pm 30$	V
Continuous Drain Current <sup>(1)</sup>	$I_D$	$T_c=25^\circ C$	7
		$T_c=100^\circ C$	4.2
Pulsed Drain Current <sup>(2)</sup>	$I_{DM}$	28	A
Total Power Dissipation <sup>(3)</sup>	$P_D$ @ $T_c=25^\circ C$	147	W
	Derating Factor above 25°C	1.2	W/°C
Thermal Resistance Junction-to-Case <sup>(3)</sup>	$R_{\theta JC}$	0.85	°C/W
Junction and Storage Temperature Range	$T_{J,TSTG}$	-55 to +150	°C

**Electrical Characteristics (T<sub>c</sub>=25 °C unless otherwise noted)**

Parameter	Symbol	Conditions	Min	Typ	Max	Units
<b>Static Parameter</b>						
Drain-Source Breakdown Voltage	B <sub>V</sub> D <sub>SS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA	650			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =650V, V <sub>GS</sub> =0V, T <sub>C</sub> =25°C			5	μA
Gate-Body Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±30V, V <sub>DS</sub> =0V			±100	nA
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	2		4	V
Static Drain-Source on-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =3.5A		1.2	1.4	Ω
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =7A, V <sub>GS</sub> =0V		0.8	1.2	V
Maximum Body-Diode Continuous Current	I <sub>S</sub>				7	A
<b>Dynamic Parameters</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =25V, V <sub>GS</sub> =0V, f=1MHz		1190		pF
Output Capacitance	C <sub>oss</sub>			90		
Reverse Transfer Capacitance	C <sub>rss</sub>			2.9		
<b>Switching Parameters</b>						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =520V, I <sub>D</sub> =7A, V <sub>GS</sub> =10V		26.5		nC
Gate Source Charge	Q <sub>gs</sub>			4.9		
Gate Drain Charge	Q <sub>gd</sub>			8.6		
Turn-on Delay Time	t <sub>D(on)</sub>	V <sub>GS</sub> =10V, V <sub>DD</sub> =325V, I <sub>D</sub> =7A, R <sub>GEN</sub> =25Ω		37.6		ns
Turn-on Rise Time	t <sub>r</sub>			17.7		
Turn-off Delay Time	t <sub>D(off)</sub>			77.2		
Turn-off Fall Time	t <sub>f</sub>			24.3		

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

(2) Pulse width limited by maximum junction temperature.

(3) Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch. With 2oz Copper, t ≤ 10s.

**Typical Performance Characteristics**

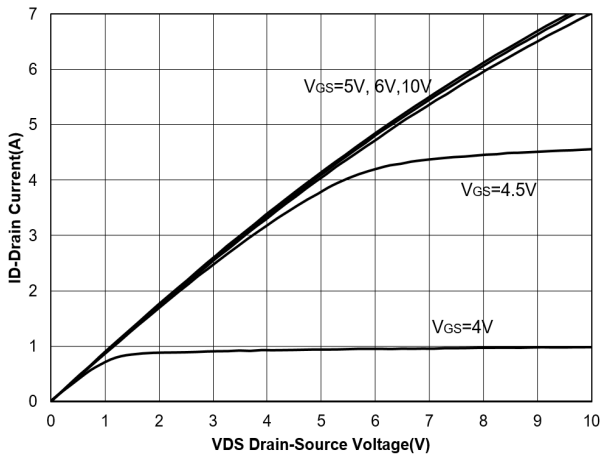


Figure 1. Output Characteristics

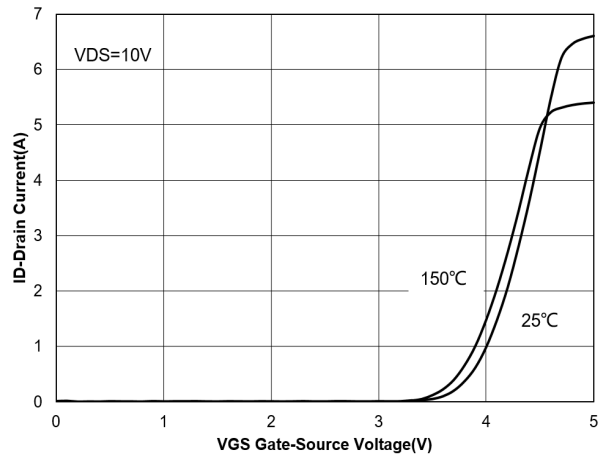


Figure 2. Transfer Characteristics

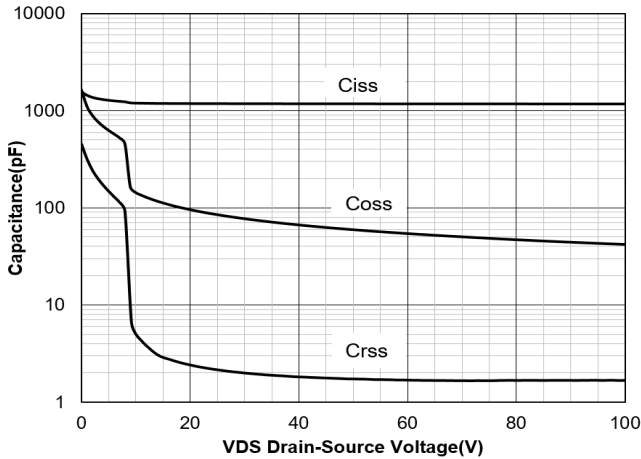


Figure 3. Capacitance Characteristics

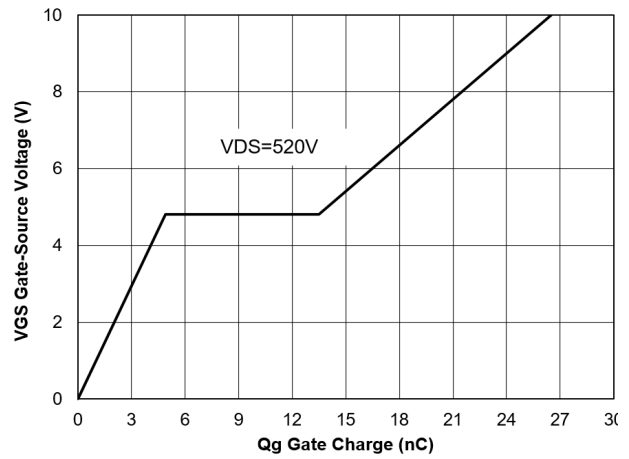


Figure 4. Gate Charge

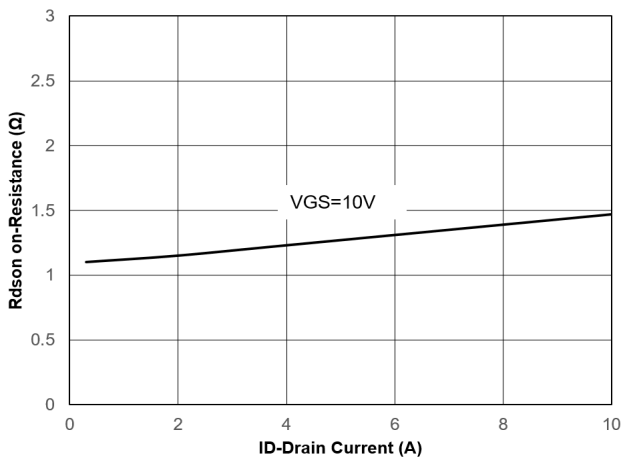


Figure 5. Drain-Source on Resistance

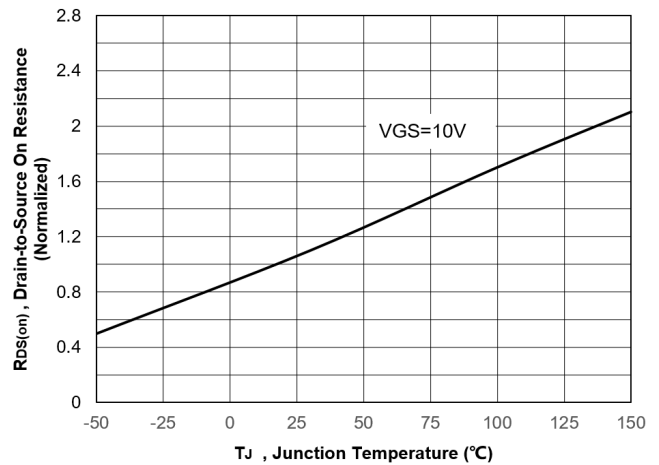


Figure 6. Normalized On-Resistance Vs. Temperature

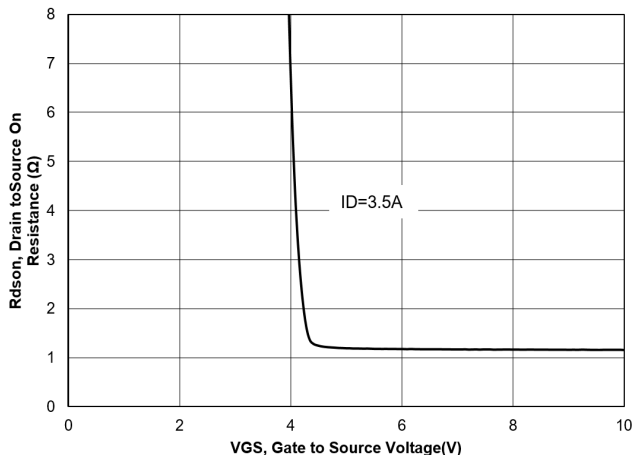


Figure 7. Typical Drain to Source ON Resistance VS Gate Voltage and Drain Current

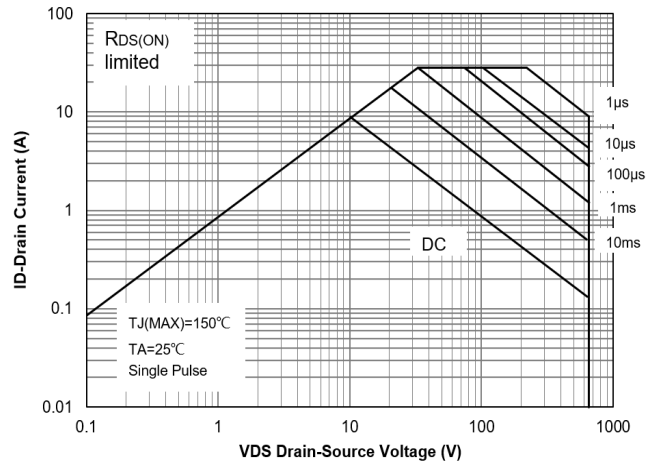


Figure 8. Safe Operation Area

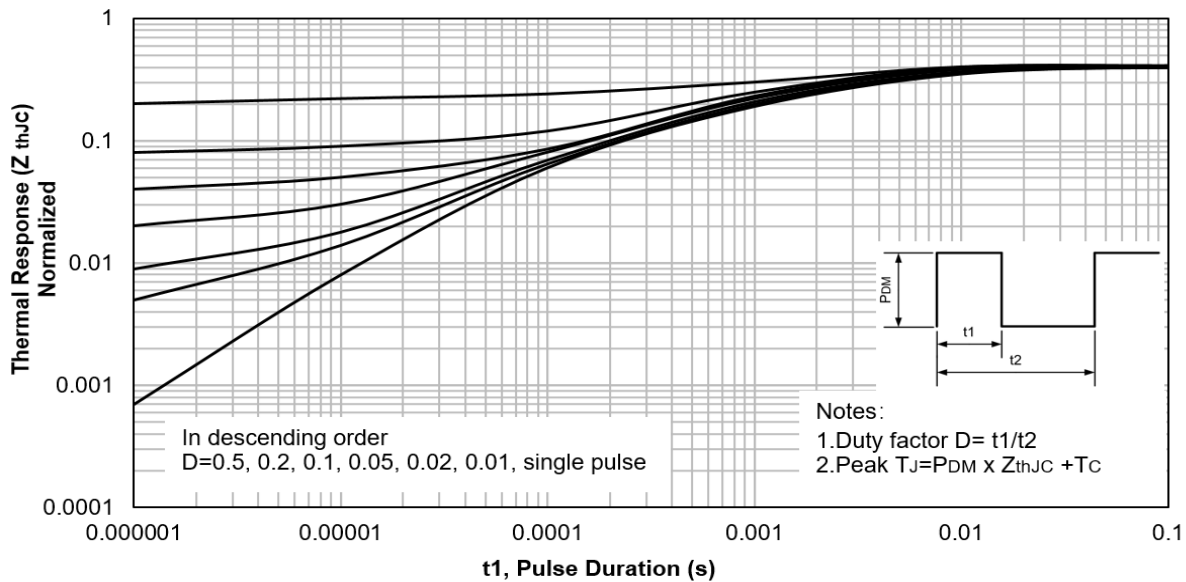


Figure 9. Maximum Effective Transient Thermal Impedance ,Junction-to-Case

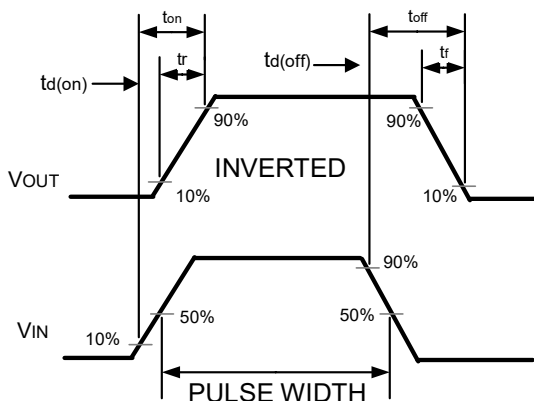
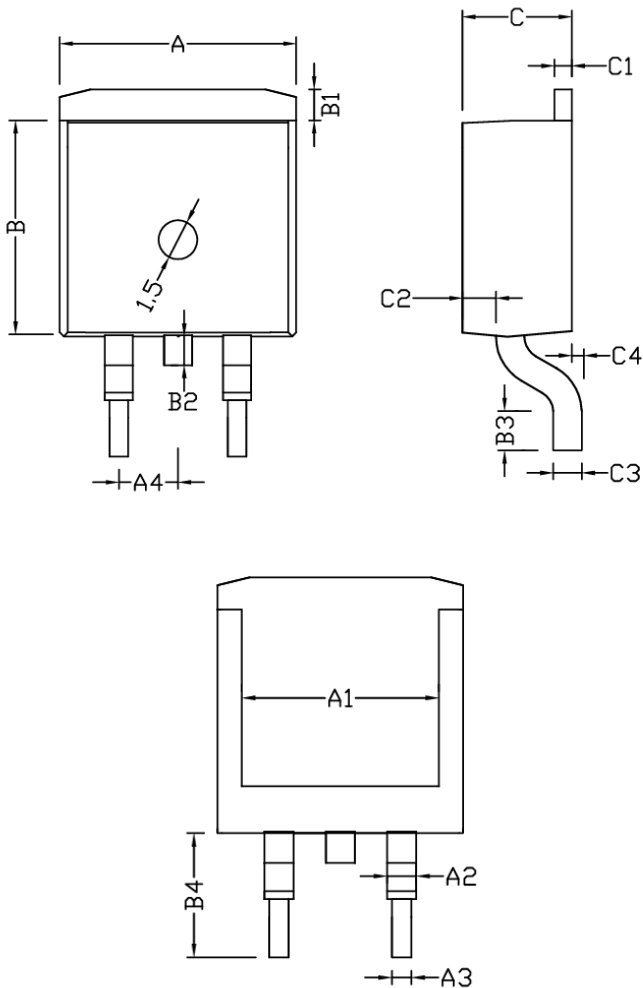


Figure 10. Switching wave

### TO-263 Package Outline Drawing



Symbol	Millimeters		
	Min.	Nom.	Max.
A	9.78	9.88	9.98
A1	7.02	7.16	7.3
A2	1.22	1.27	1.35
A3	0.77	0.8	0.83
A4	2.5	2.54	2.58
B	8.7	9.2	9.7
B1	1.07	1.27	1.47
B2	1.4	1.55	1.7
B3	2.0	2.3	2.6
B4	5.03	5.13	5.23
C	4.42	4.5	4.58
C1	1.27	1.3	1.33
C2	1.55	1.6	1.65
C3	0.48	0.5	0.52
C4	0.01	0.06	0.12

### Contact Information

Applied Power Microelectronics Inc.

Website: <http://www.appliedpowermicro.com>

Email: [sales@appliedpowermicro.com](mailto:sales@appliedpowermicro.com)

Phone: +86 (0519) 8399 3606