

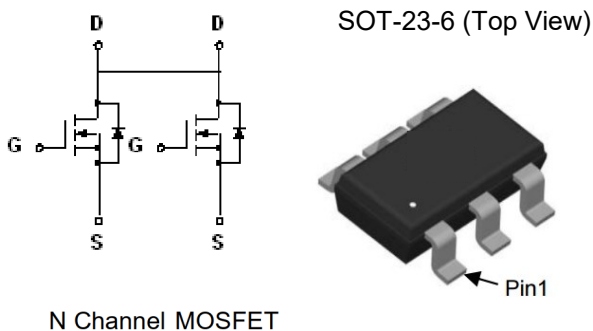
Description

CM8205 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} : 20V
- I_D : 6A
- $R_{DS(on)}$ (@ $V_{GS}=4.5V$) : < 25m Ω
- $R_{DS(on)}$ (@ $V_{GS}=2.5V$) : < 38m Ω
- High density cell design for extremely low $R_{DS(on)}$
- Excellent on-resistance and DC current capability

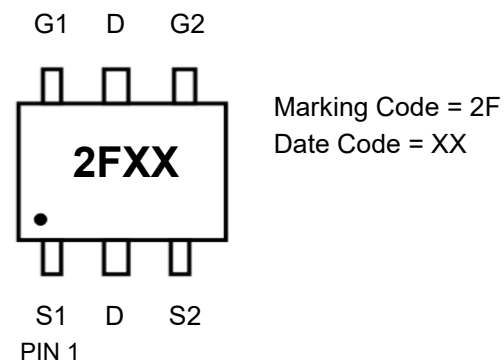
Equivalent Circuit and Pin Configuration



Applications

- Cellular Handsets and Accessories
- Personal Digital Assistants
- Portable Instrumentation
- Load switch

Marking Information



Ordering Information

Part Number	Packaging	Reel Size
CM8205	3000/Tape & Reel	7 inch

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

Parameter	Symbol	Maximum	Unit	
Drain-source Voltage	V_{DS}	20	V	
Gate-source Voltage	V_{GS}	± 12	V	
Continuous Drain Current	I_D	$T_A=25^\circ C$	6	A
		$T_A=70^\circ C$	4.7	A
Pulsed Drain Current ⁽¹⁾	I_{DM}	24	A	
Total Power Dissipation @ $T_A=25^\circ C$ ⁽²⁾	P_D	1.4	W	
Thermal Resistance Junction-to-Ambient ⁽²⁾	$R_{\theta JA}$	90	$^\circ C/W$	
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ C$	

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

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	20			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =20V, V _{GS} =0V, T _C =25°C			1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±12V, V _{DS} =0V			±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.4		1.0	V
Static Drain-Source on-Resistance	R _{DS(on)}	V _{GS} =4.5V, I _D =6.0A		20	25	mΩ
		V _{GS} =2.5V, I _D =5.2A		27	38	
Diode Forward Voltage	V _{SD}	I _S =6A, V _{GS} =0V			1.2	V
Maximum Body-Diode Continuous Current	I _S				6	A
Dynamic Parameters						
Input Capacitance	C _{iss}	V _{DS} =20V, V _{GS} =0V, f=1MHz		430		pF
Output Capacitance	C _{oss}			51		
Reverse Transfer Capacitance	C _{rss}			43		
Switching Parameters						
Total Gate Charge	Q _g	V _{GS} =5V, V _{DS} =20V, I _D =6A		6.7		nC
Gate Source Charge	Q _{gs}			0.7		
Gate Drain Charge	Q _{gd}			2.3		
Turn-on Delay Time	t _{D(on)}	V _{GS} =5V, V _{DD} =10V, I _D =1A R _L =10Ω, R _{GEN} =6Ω		30		ns
Turn-on Rise Time	t _r			70		
Turn-off Delay Time	t _{D(off)}			40		
Turn-off Fall Time	t _f			65		

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

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

Typical Performance Characteristics

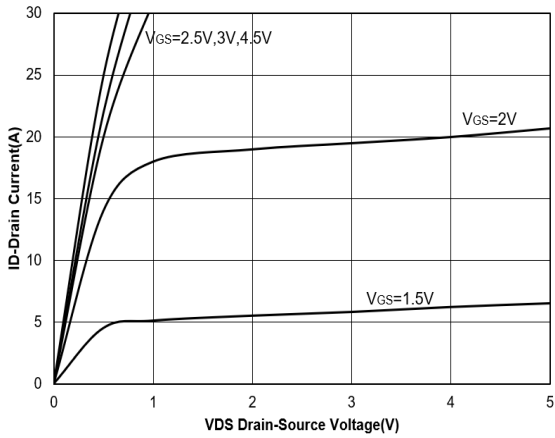


Figure 1. Output Characteristics

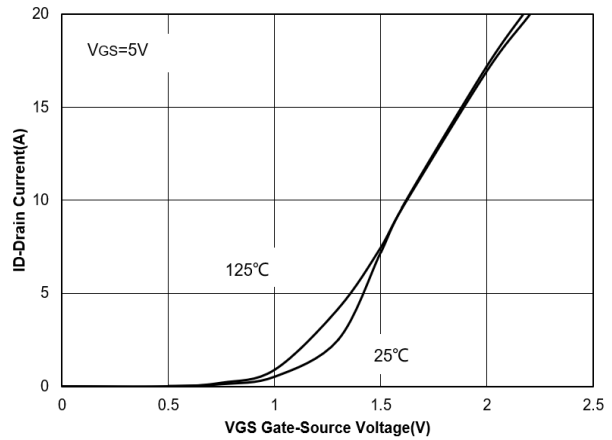


Figure 2. Transfer Characteristics

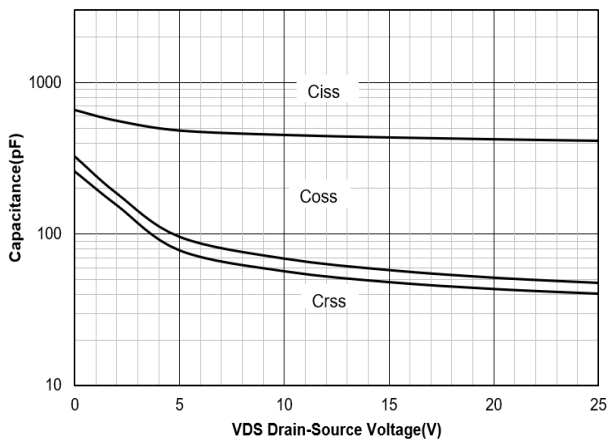


Figure 3. Capacitance Characteristics

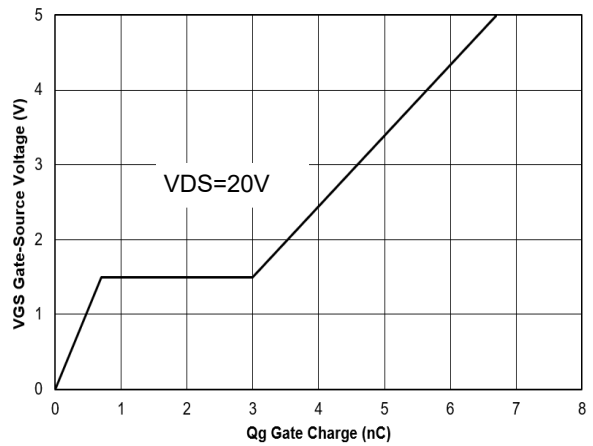


Figure 4. Gate Charge

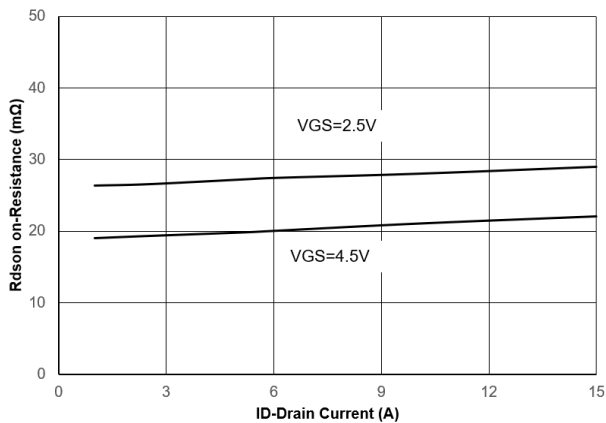


Figure 5. Drain-Source on Resistance

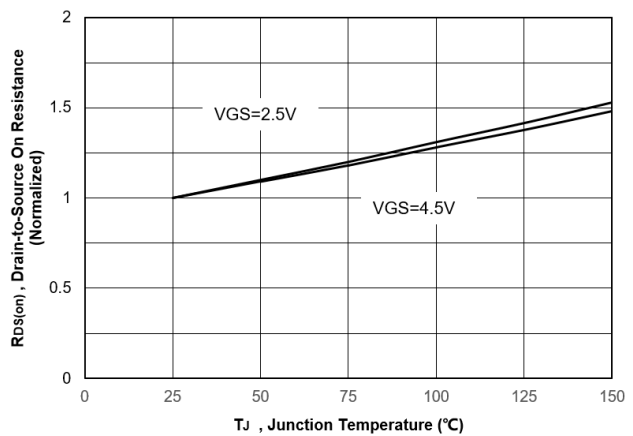


Figure 6. Normalized On-Resistance Vs. Temperature

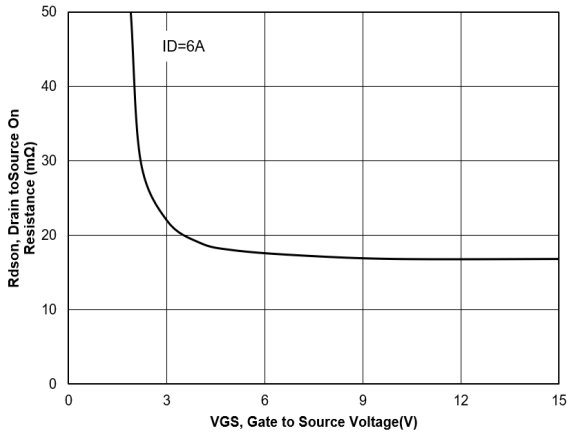


Figure 7. Typical Drain to Source ON Resistance VS Gate Voltage and Drain Current

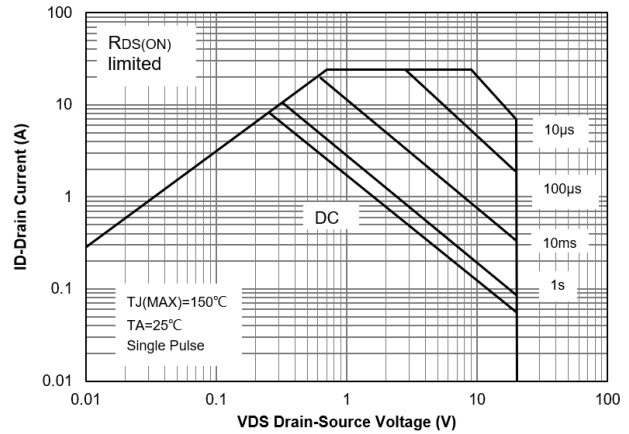


Figure 8. Safe Operation Area

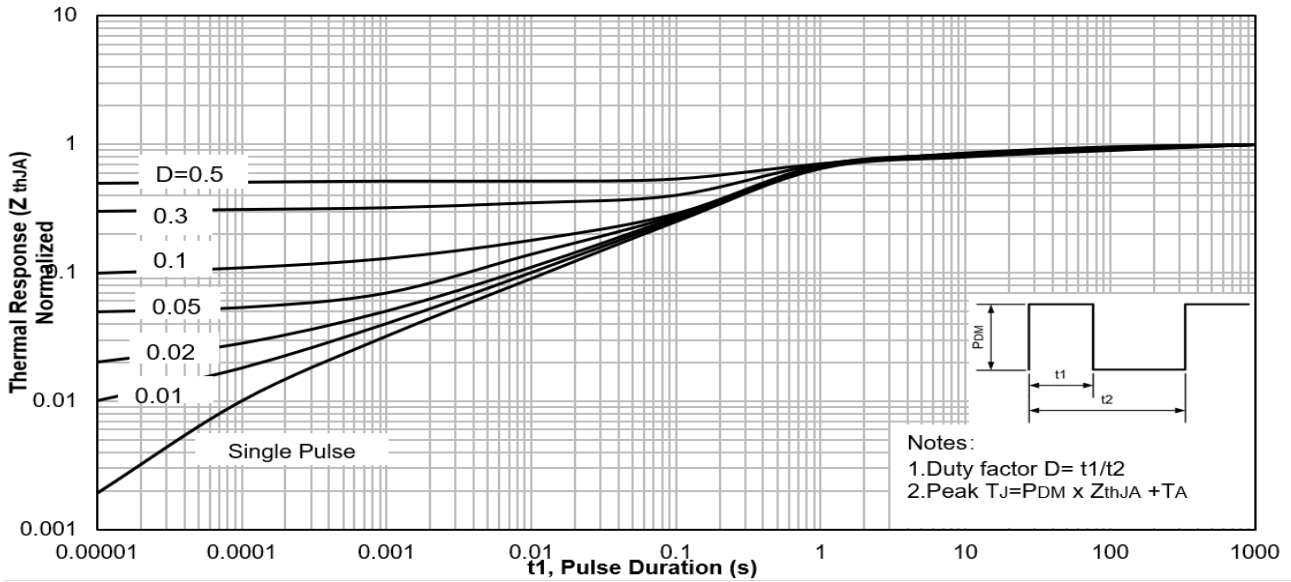


Figure 9. Maximum Effective Transient Thermal Impedance ,Junction-to-Ambient

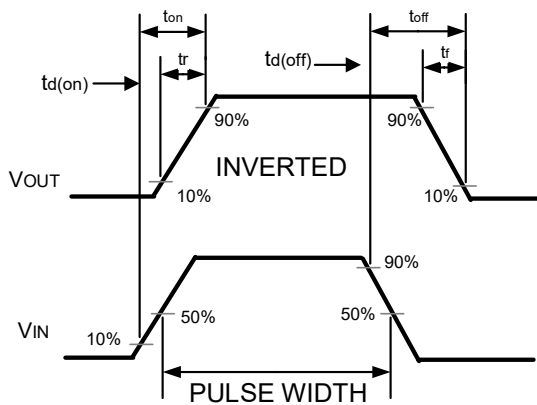
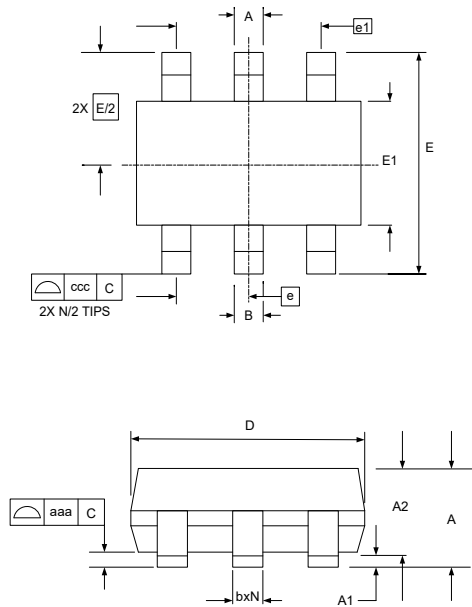


Figure 10. Switching wave

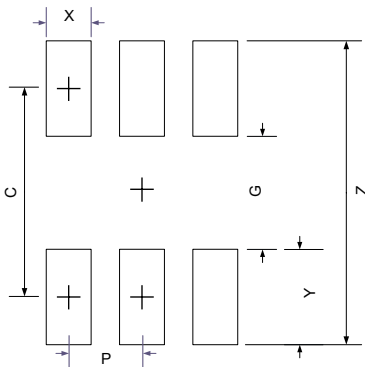
SOT-23-6 Package Outline Drawing

(Unit : mm)



SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.90		1.45	0.035		0.057
A1	0.00		0.15	0.000		0.006
A2	0.90	1.15	1.30	0.035	0.045	0.051
b	0.25		0.50	0.010		0.020
c	0.08		0.22	0.003		0.009
D	2.80	2.90	3.10	0.110	0.114	0.122
E1	1.50	1.60	1.75	0.060	0.063	0.069
E	2.80 BSC			0.110 BSC		
e	0.95 BSC			0.037 BSC		
e1	1.90 BSC			0.075 BSC		
N	6			6		
aaa	0.10			0.004		
ccc	0.20			0.008		

Suggested Land Pattern



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
C	2.50	0.098
G	1.40	0.055
P	0.95	0.037
X	0.60	0.024
Y	1.10	0.043
Z	3.60	0.141

Contact Information

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