Micro Commercial Components

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MCM2301

P-Channel Enhancement Mode Field Effect Transistor

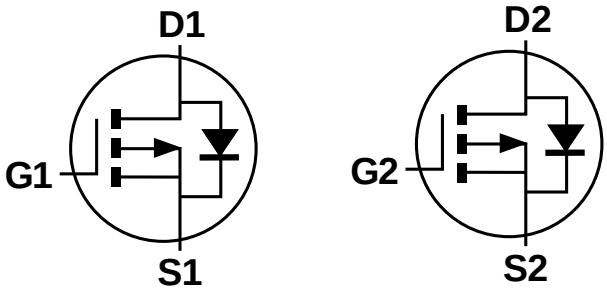
Features

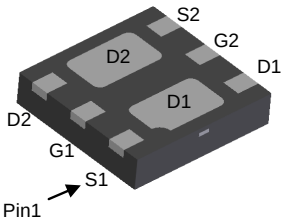
- Halogen free available upon request by adding suffix "-HF"
- Trench FET structure
- High dense cell design for extremely low $R_{DS(ON)}$
- Rugged and reliable
- High speed switching
- DFN2020-6L pcakage
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1

Maximum Ratings @ 25°C Unless Otherwise Specified

Symbol	Parameter	Rating	Unit
V_{DS}	Drain-source Voltage	-20	V
I_D	Drain Current-Continuous	-3.8	A
I_{DM}	Drain Current-Pulsed [a]	-13	A
V_{GS}	Gate-source Voltage	±10	V
P_D	Total Power Dissipation	1.4	W
$R_{\theta JA}$	Thermal Resistance Junction to Ambient[b]	89	℃/W
T_J	Operating Junction Temperature	-55 to +150	℃
T_{STG}	Storage Temperature	-55 to +150	℃

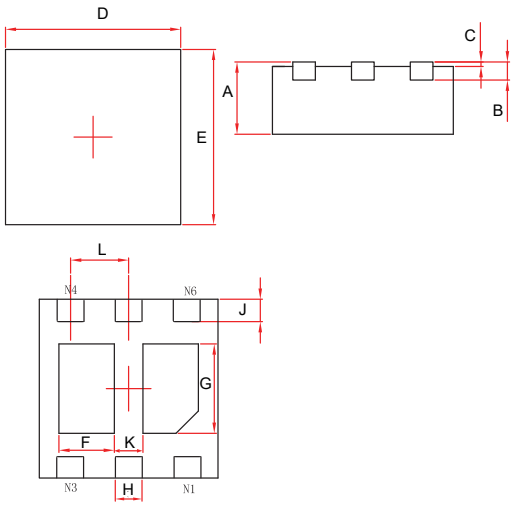
Internal Block Diagram





Bottom View

DFN2020-6L



Dimensions					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.030	.034	0.750	0.850	
B	0.008REF.		0.200REF.		
C	0000	0.002	0.000	0.050	
D	0.077	0.081	1.950	2.050	
E	0.077	0.081	1.950	2.050	
F	0.017	0.027	0.440	0.690	
G	0.033	0.043	0.840	1.090	
H	0.010	0.014	0.250	0.350	
J	0.007	0.015	0.175	0.375	
K	0.010	0.014	0.250	0.350	
L	0.026TYP.		0.650TYP.		

Electrical Characteristics T_A = 25°C unless otherwise noted

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Off Characteristics						
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			-1	μA
Gate Body Leakage Current, Forward	I_{GSSF}	V_{GS} = 8V, V_{DS} = 0V			100	nA
Gate Body Leakage Current, Reverse	I_{GSSR}	V_{GS} = -8V, V_{DS} = 0V			-100	nA
On Characteristics [c]						
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS} = V_{DS}, I_D = -250μA	-0.5	-0.7	-0.9	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = -4.5V, I_D = -1.9A		49	70	mΩ
		V_{GS} = -2.5V, I_D = -1.9A		59	90	mΩ
Forward Transconductance	g_{FS}	V_{DS} = -5V, I_D = -2.8A		8		S
Dynamic Characteristics [d]						
Input Capacitance	C_{iss}	V_{DS} = -6V, V_{GS} = 0V, f = 1.0 MHz		880		pF
Output Capacitance	C_{oss}			270		pF
Reverse Transfer Capacitance	C_{rss}			175		pF
Switching Characteristics [d]						
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = -6V, I_D = -1A, V_{GS} = -4.5V, R_{GEN} = 6Ω		11	20	ns
Turn-On Rise Time	t_r			5	10	ns
Turn-Off Delay Time	$t_{d(off)}$			32	65	ns
Turn-Off Fall Time	t_f			23	45	ns
Total Gate Charge	Q_g	V_{DS} = -6V, I_D = -2.8A, V_{GS} = -4.5V		11	14.5	nC
Gate-Source Charge	Q_{gs}			1.5		nC
Gate-Drain Charge	Q_{gd}			2.1		nC
Drain-Source Diode Characteristics and Maximun Ratings						
Drain-Source Diode Forward Current [b]	I_S				-0.75	A
Drain-Source Diode Forward Voltage [c]	V_{SD}	V_{GS} = 0V, I_S = -0.75A			-1.2	V

Notes :
a.Repetitive Rating : Pulse width limited by maximum junction temperature.
b.Surface Mounted on FR4 Board, t < 5 sec.
c.Pulse Test : Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
d.Guaranteed by design, not subject to production testing.

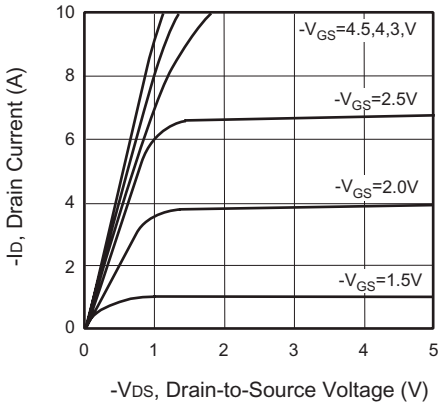


Figure 1. Output Characteristics

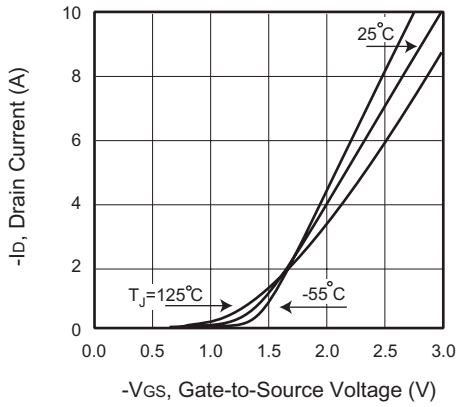


Figure 2. Transfer Characteristics

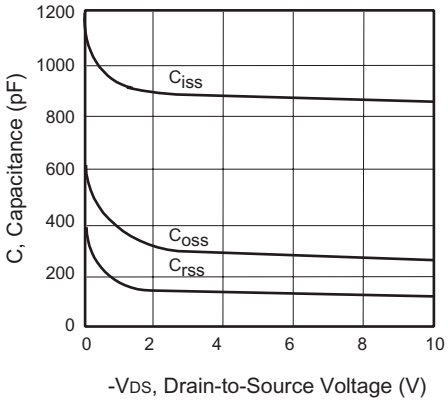


Figure 3. Capacitance

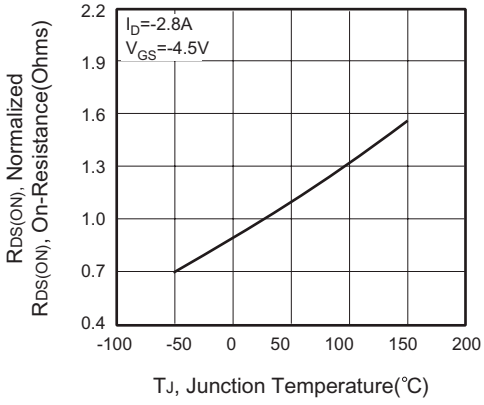


Figure 4. On-Resistance Variation with Temperature

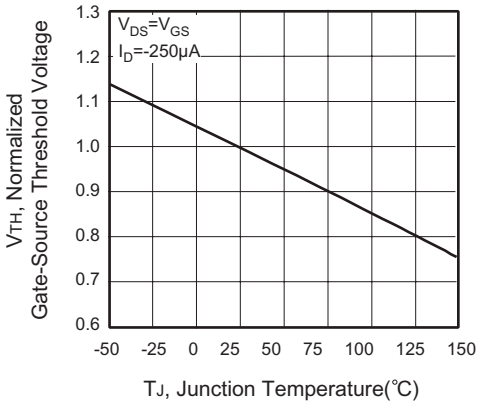


Figure 5. Gate Threshold Variation with Temperature

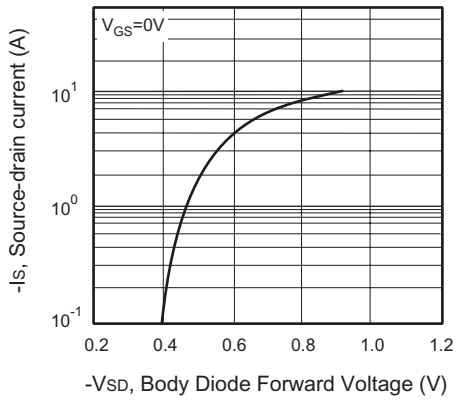


Figure 6. Body Diode Forward Voltage Variation with Source Current

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Ordering Information :

Device	Packing
Part Number-TP	Tape&Reel: 3Kpcs/Reel

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
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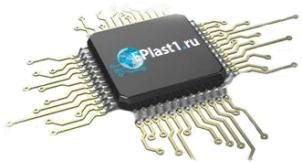
- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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