

P-Channel Enhancement Mode Field Effect Transistor

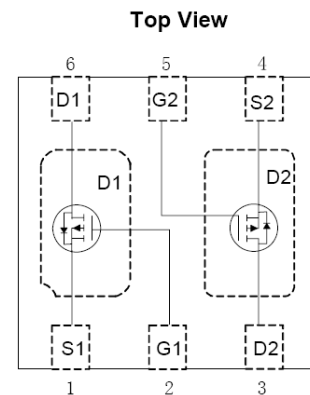
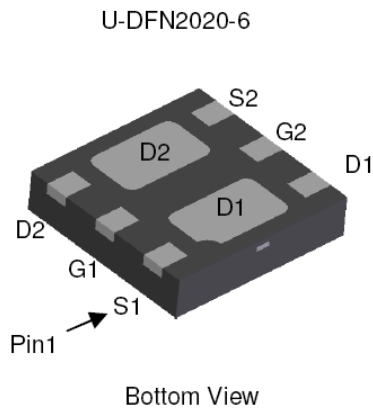
- Features**

High density Cell Design for Low $R_{DS(ON)}$
 Voltage controlled small signal switch
 Reliable and Rugged

- General Description**

These P-Channel enhancement mode field effect transistors are produced using high cell density, DMOS technology.

- Pin Configurations**



- Absolute Maximum Ratings**

@ $T_A=25^{\circ}C$ unless otherwise noted

Parameter	Symbol	Ratings	Unit
Drain - Source Voltage	V_{DSS}	-20	V
Gate -Source Voltage	V_{GS}	± 8	V
Drain Current (Continuous)	I_D	-2.8	A
Drain Current (Pulse)	I_{DP}	-10	A
Power Dissipation	P_D	1.25	W
Operating Temperature	T_J	-55~150	$^{\circ}C$
Storage Temperature	T_{STG}	-55~150	$^{\circ}C$

● **Electrical Characteristics** @ $T_A=25^\circ\text{C}$ unless otherwise noted

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-20			V
Drain Cut-off Current	I_{DSS}	$V_{DS} = -20V, V_{GS} = 0V$	--	--	-1	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS} = \pm 8V, V_{DS} = 0V$	--	--	± 110	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(th)}$	$I_D = -250\mu A, V_{DS} = V_{GS}$	-0.45	--	-1.5	V
Drain-Source On-state Resistance	$R_{DS(on)}$	$I_D = -2.8A, V_{GS} = -4.5V$	--	--	73	$m\Omega$
		$I_D = -2A, V_{GS} = -2.5V$	--	--	116	$m\Omega$
Forward Transconductance	g_{FS}	$V_{DS} = -5V, I_D = -2.8A$	--	6.5	--	S
On-State Drain Current ¹	$I_{D(on)}$	$V_{DS} = -5V, V_{GS} = -4.5V$	-6	--	--	A
		$V_{DS} = -5V, V_{GS} = -2.5V$	-3	--	--	
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{iss}	$V_{DS} = -6V, V_{GS} = 0V$ $f = 1\text{ MHz}$	--	415	--	pF
Output Capacitance	C_{oss}		--	223	--	pF
Feedback Capacitance	C_{rss}		--	87	--	pF
SWITCHING CHARACTERISTICS						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD} = -6V, R_L = 6\Omega, I_D = -1.0A,$	--	13	25	ns
Turn-off Delay Time	$t_{d(off)}$	$V_{GEN} = -4.5V, R_G = 6\Omega$	--	42	70	ns
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
Drain-Source Diode Forward Current	I_S	--	--	--	-0.75	A
Drain-Source Diode Forward Voltage	V_{SD}	$I_S = -1.6A, V_{GS} = 0V$	-0.5	--	-1.2	V

Notes:

1. Pulse width limited by maximum junction temperature. Pulse test: $PW \leq 300\mu s$, duty cycle $\leq 2\%$.
2. For design AID only, not subject to production testing. Switching time is essentially independent of operating temperature.

- Typical Performance Characteristics

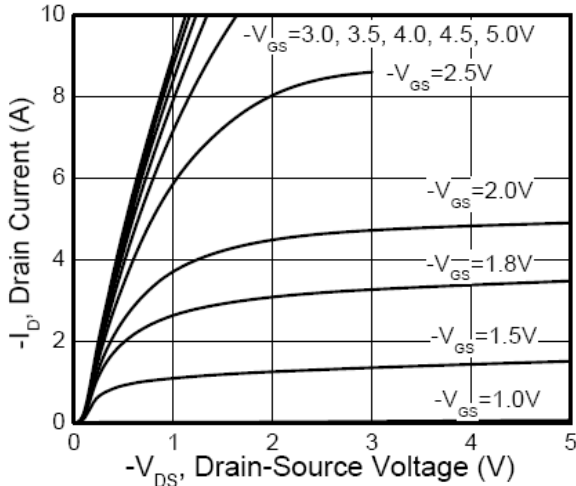


Figure 1. Output Characteristics

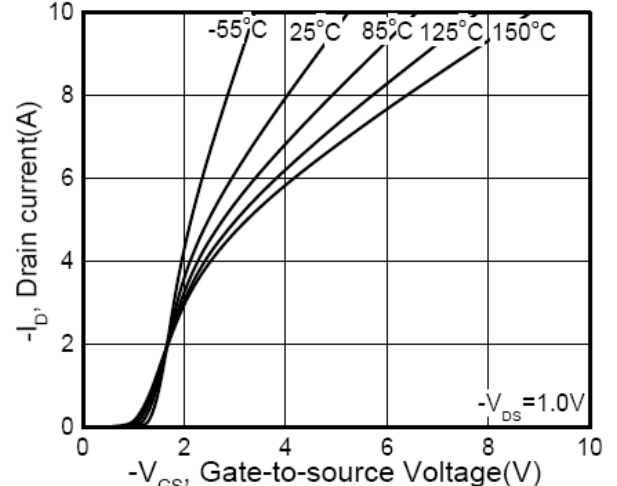


Figure 2. Transfer Characteristics

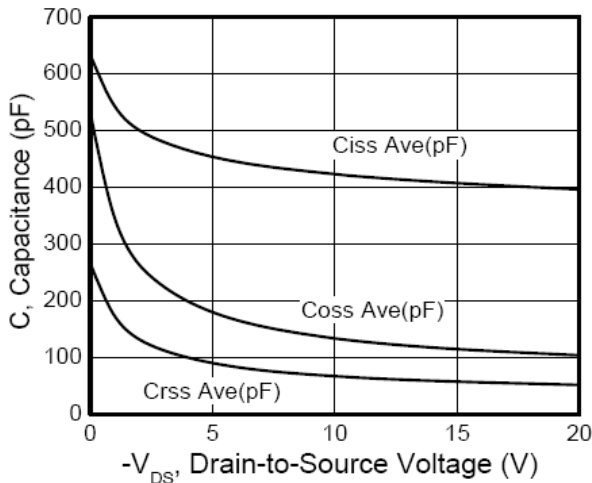


Figure 3. Capacitance

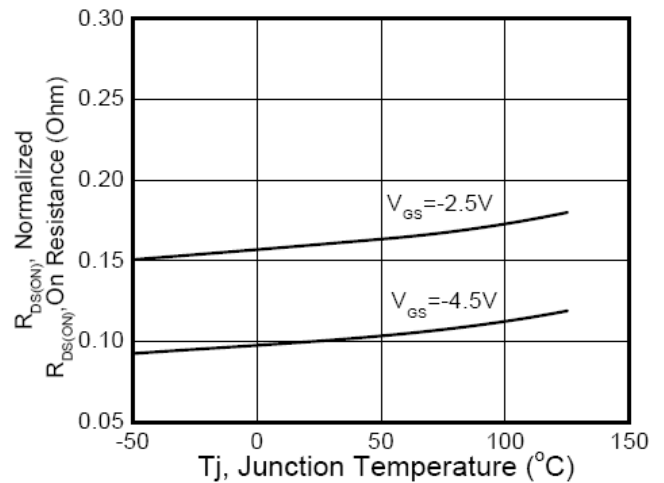


Figure 4. On Resistance Vs. Temperature

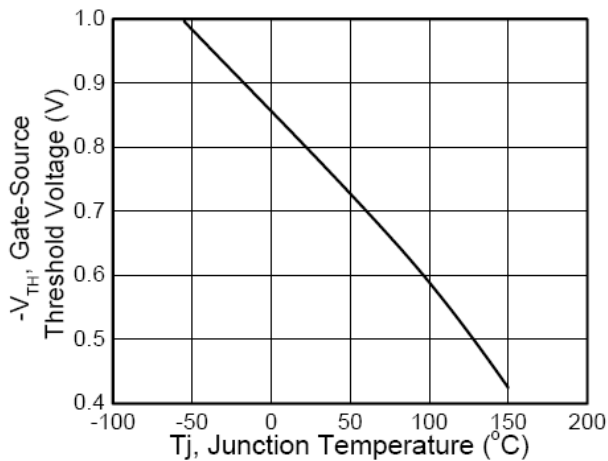


Figure 5. Gate Threshold Vs. Temperature

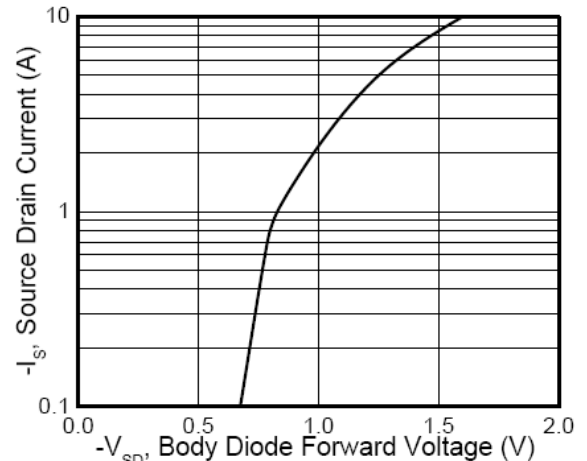
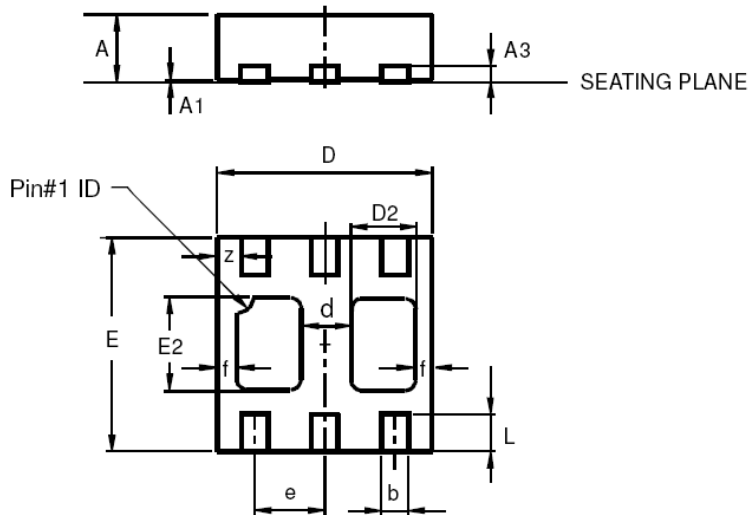
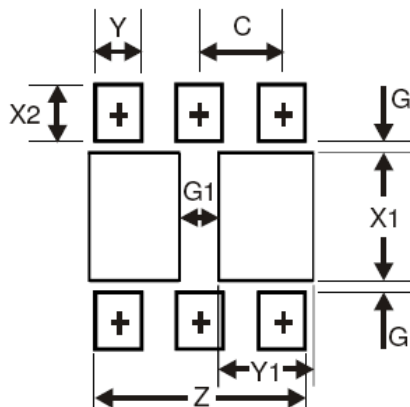


Figure 6. Body Diode Forward Voltage Vs. Source Current

- **Package Information**
DFN2020-6



U-DFN2020-6 Type B			
Dim	Min	Max	Typ
A	0.545	0.605	0.575
A1	0	0.05	0.02
A3	—	—	0.13
b	0.20	0.30	0.25
D	1.95	2.075	2.00
d	—	—	0.45
D2	0.50	0.70	0.60
e	—	—	0.65
E	1.95	2.075	2.00
E2	0.90	1.10	1.00
f	—	—	0.15
L	0.25	0.35	0.30
z	—	—	0.225
All Dimensions in mm			



Dimensions	Value (in mm)
Z	1.67
G	0.20
G1	0.40
X1	1.0
X2	0.45
Y	0.37
Y1	0.70
C	0.65

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