

Product Summary

BV _{DSS}	R _{DS(ON)} max	I _D max T _A = +25°C
20V	9mΩ @ V _{GS} = 4.5V	15.2A
	15mΩ @ V _{GS} = 2.5V	13.8A

Application

- General Purpose Interfacing Switch
- Power Management Functions

Ordering Information

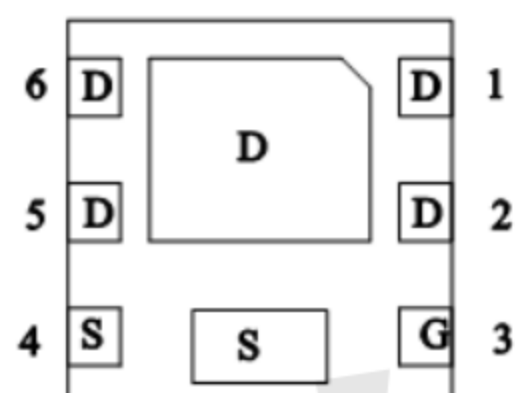
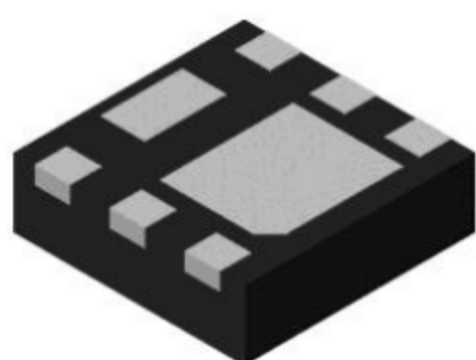
- Shipping Qty:3000 /7inch Tape& Reel

Features

- 0.6mm Profile – Ideal for Low Profile Applications
- PCB Footprint of 4mm²
- Low Gate Threshold Voltage
- Low On-Resistance

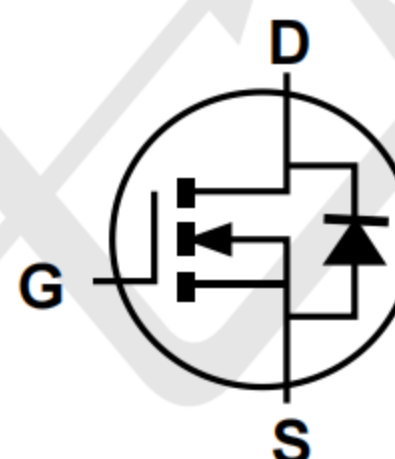
Package and Pin Configuration

DFN2X2



Pin Out
Bottom View

Circuit diagram



Marking:1019D

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

Characteristic	Symbol	Value	Unit	
Drain-Source Voltage	V _{DSS}	20	V	
Gate-Source Voltage	V _{GSS}	±8	V	
Continuous Drain Current (Note 6) V _{GS} = 4.5V	Steady State	T _A = +25°C	11.6	A
		T _A = +70°C	9.3	
	t < 10s	T _A = +25°C	15.2	A
		T _A = +70°C	12.2	
Pulsed Drain Current (380μs Pulse, Duty Cycle = 1%)	I _{DM}	70	A	
Maximum Body Diode Continuous Current (Note 6)	I _S	2.1	A	
Avalanche Current (Note 7) L = 0.1mH	I _{AS}	23	A	
Avalanche Energy (Note 7) L = 0.1mH	E _{AS}	28	mJ	

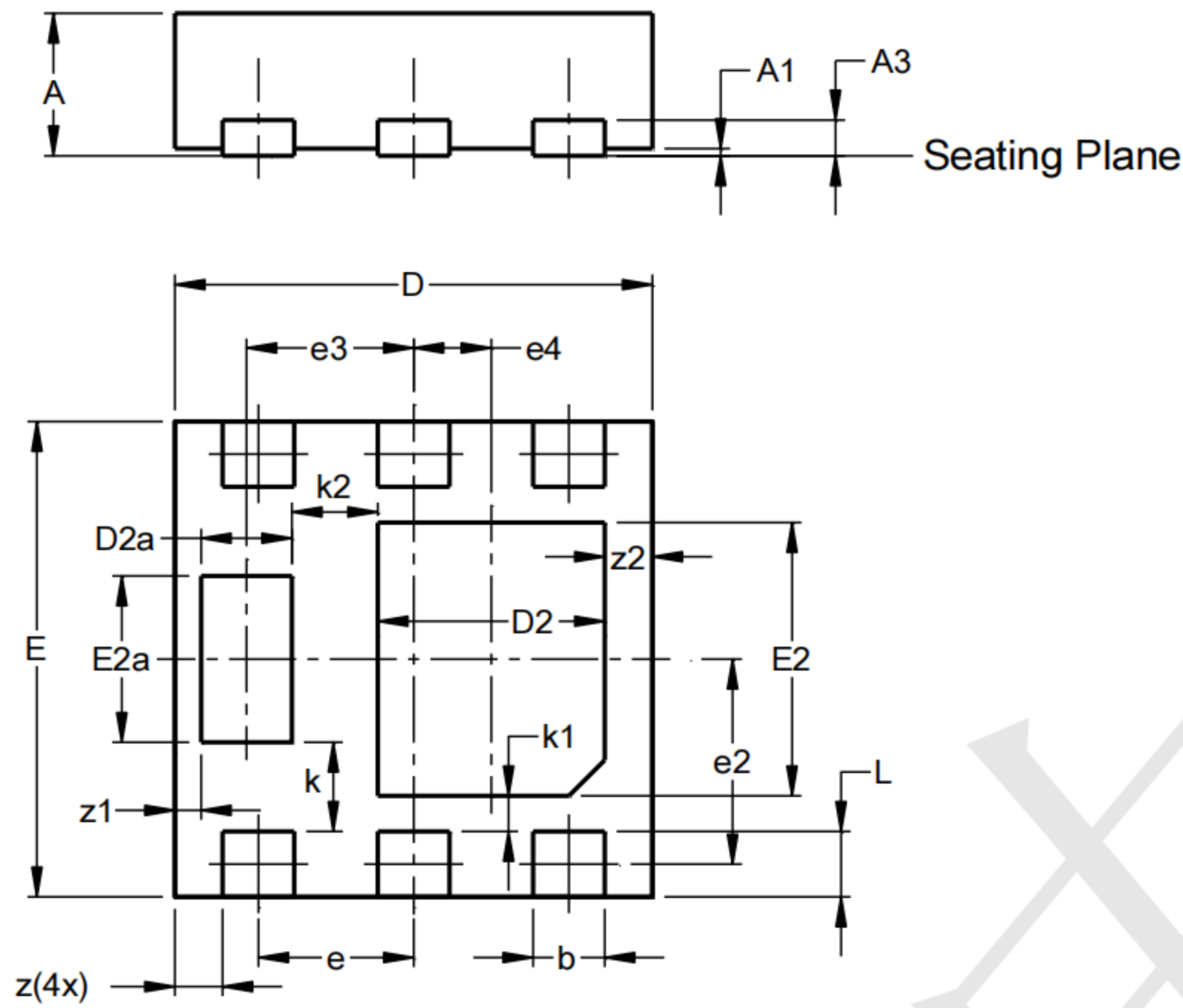
Thermal Characteristics

Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 5)	P _D	T _A = +25°C	0.8
		T _A = +70°C	0.5
Thermal Resistance, Junction to Ambient (Note 5)	R _{θJA}	Steady state	159
		t < 10s	110
Total Power Dissipation (Note 6)	P _D	T _A = +25°C	1.8
		T _A = +70°C	1.2
Thermal Resistance, Junction to Ambient (Note 6)	R _{θJA}	Steady state	70
		t < 10s	40
Thermal Resistance, Junction to Case (Note 6)	R _{θJC}	14	°CW
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

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

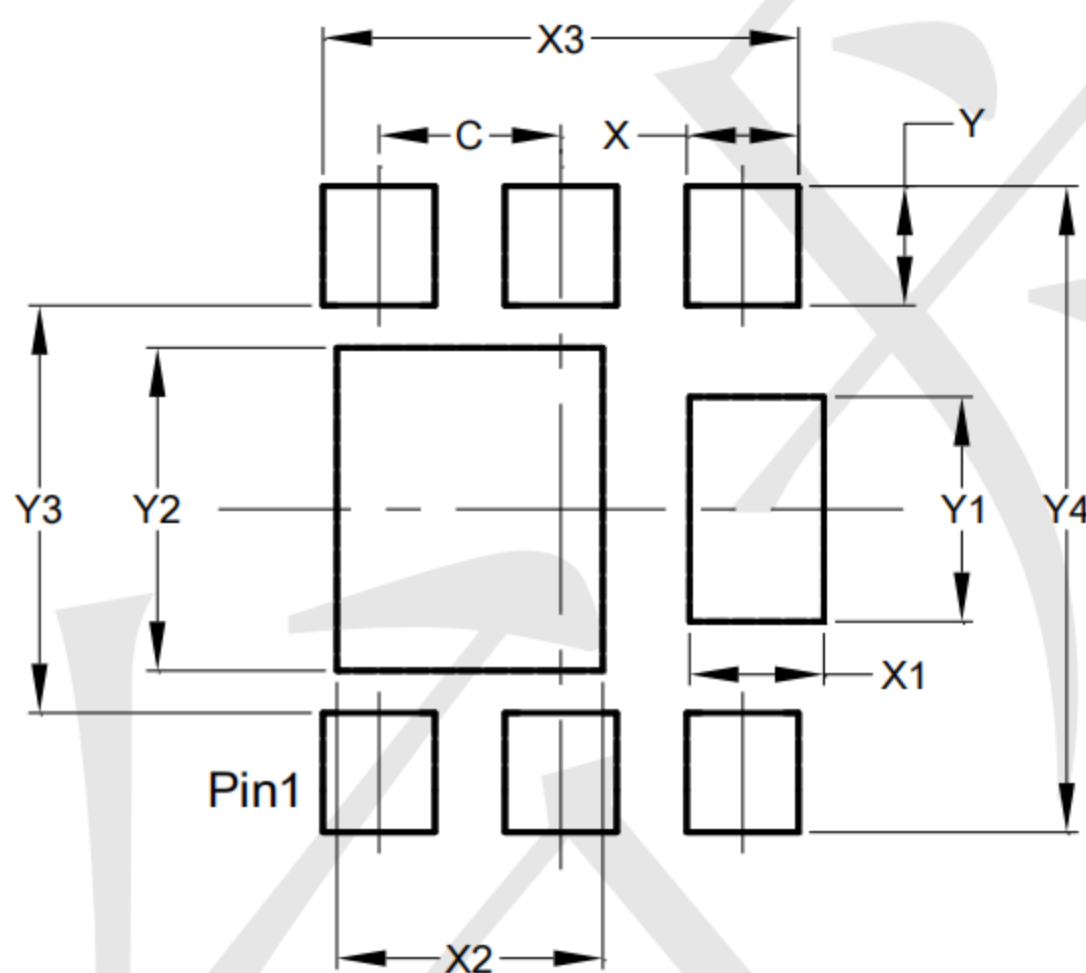
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 8)						
Drain-Source Breakdown Voltage	BV _{DSS}	20	—	—	V	V _{GS} = 0V, I _D = 250μA
Zero Gate Voltage Drain Current T _J = +25°C	I _{DSS}	—	—	1	μA	V _{DS} = 16V, V _{GS} = 0V
Gate-Source Leakage	I _{GSS}	—	—	±100	nA	V _{GS} = ±8 V, V _{DS} = 0V
ON CHARACTERISTICS (Note 8)						
Gate Threshold Voltage	V _{GS(TH)}	0.4	—	1.2	V	V _{DS} = V _{GS} , I _D = 250μA
Static Drain-Source On-Resistance	R _{DS(ON)}	—	6.8	9	mΩ	V _{GS} = 4.5V, I _D = 8.5A
			7.6	15		
			11	30		
			18	50		
Diode Forward Voltage	V _{SD}	—	0.75	1.2	V	V _{GS} = 0V, I _S = 8.5A
DYNAMIC CHARACTERISTICS (Note 9)						
Input Capacitance	C _{iss}	—	1439	—	pF	V _{DS} = 10V, V _{GS} = 0V, f = 1.0MHz
Output Capacitance	C _{oss}	—	224	—	pF	
Reverse Transfer Capacitance	C _{rss}	—	202	—	pF	
Gate Resistance	R _g	—	1.3	—	Ω	V _{DS} = 0V, V _{GS} = 0V, f = 1MHz
Total Gate Charge (V _{GS} = 4.5V)	Q _g	—	19.3	—	nC	V _{DS} = 10V, I _D = 8.5A
Total Gate Charge (V _{GS} = 10V)	Q _g	—	42.3	—	nC	
Gate-Source Charge	Q _{gs}	—	2.5	—	nC	
Gate-Drain Charge	Q _{gd}	—	4.5	—	nC	
Turn-On Delay Time	t _{D(ON)}	—	4.7	—	ns	V _{DS} = 10V, I _D = 8.5A V _{GS} = 4.5V, R _G = 1.8Ω
Turn-On Rise Time	t _r	—	6.9	—	ns	
Turn-Off Delay Time	t _{D(OFF)}	—	23	—	ns	
Turn-Off Fall Time	t _f	—	7.4	—	ns	
Reverse Recovery Time	t _{RR}	—	11.6	—	ns	I _F = 8.5A, di/dt = 210A/μs
Reverse Recovery Charge	Q _{RR}	—	4.6	—	nC	

DFN2X2 Package Outline Dimensions



(Type F)			
Dim	Min	Max	Typ
A	0.57	0.63	0.60
A1	0.00	0.05	0.03
A3	-	-	0.15
b	0.25	0.35	0.30
D	1.95	2.05	2.00
D2	0.85	1.05	0.95
D2a	0.33	0.43	0.38
E	1.95	2.05	2.00
E2	1.05	1.25	1.15
E2a	0.65	0.75	0.70
e	0.65 BSC		
e2	0.863 BSC		
e3	0.70 BSC		
e4	0.325 BSC		
k	0.37 BSC		
k1	0.15 BSC		
k2	0.36 BSC		
L	0.225	0.325	0.275
z	0.20 BSC		
z1	0.110 BSC		
z2	0.20 BSC		
All Dimensions in mm			

Suggested Pad Layout



Dimensions	Value (in mm)
C	0.650
X	0.400
X1	0.480
X2	0.950
X3	1.700
Y	0.425
Y1	0.800
Y2	1.150
Y3	1.450
Y4	2.300

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