

N-Channel Enhancement Mode MOSFET

- **Features**

VDS	VGS	RDSon TYP	ID
30V	±20V	19mR@10V	7A
		32mR@4V5	

- **General Description**

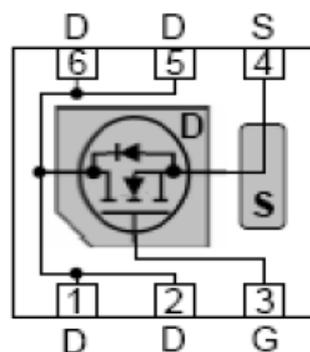
This device uses advanced trench technology to provide excellent RDS(ON) and low gate charge. This device is suitable for use as a load switch or in PWM applications.

- **Applications**

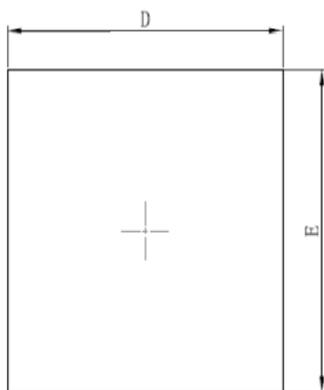
- Load Switch
- Portable Devices
- DCDC conversion

- **Pin configuration**

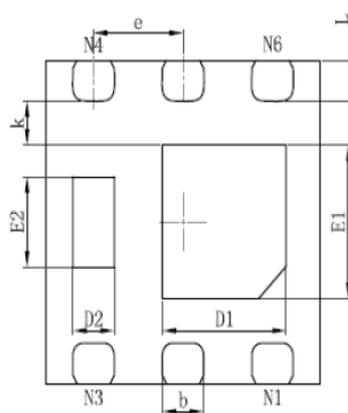
Top View



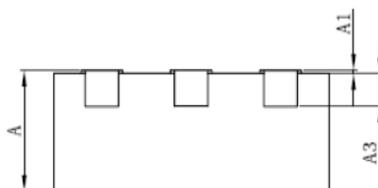
- **Package Information**



TOP VIEW



BOTTOM VIEW



SIDE VIEW

DFN2x2-6L

Symbol	Dimensions In Millimeters	
	Min.	Max.
A	0.700	0.800
A1	0.000	0.050
A3	0.203REF.	
D	1.924	2.076
E	1.924	2.076
D1	0.800	1.000
E1	0.850	1.050
D2	0.200	0.400
E2	0.460	0.660
k	0.200MIN.	
b	0.250	0.350
e	0.650TYP.	
L	0.174	0.326



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● **Absolute Maximum Ratings @ TA = 25°C unless otherwise specified**

Parameter	Symbol	Maximum		Unit
		10S	Steady	
Drain-Source Voltage	V _{DSS}	30		V
Gate-Source Voltage	V _{GSS}	±20		V
Continuous Drain Current ¹ V _{GS} @10V T _C = 25°C	I _D	7		A
Continuous Drain Current ¹ V _{GS} @10V T _C = 100°C		5		A
Continuous Drain Current ² V _{GS} @10V T _A = 25°C	I _{DSM}	4	3.2	A
Continuous Drain Current ² V _{GS} @10V T _A = 70°C		3	2.3	A
Plused Drain Current ³	I _{DM}	27		A
Repetitive avalanche energy L=0.1mH ³	E _{AS}	56		mJ
Power Dissipation ¹ T _C = 25°C	P _D	8		W
Power Dissipation ¹ T _C = 100°C		3.1		W
Power Dissipation ² T _A = 25°C	P _{DSM}	2.6		W
Power Dissipation ² T _A = 70°C		1.3		W
Storage and Junction Temperature Range	T _J , T _{STG}	-55 to +150		°C

● **Thermal Characteristics**

Parameter		Symbol	Typ	Max	Units
Maximum Junction-to-Ambient ²	t ≤ 10S	R _{θJA}	37	48	°C/W
Maximum Junction-to-Ambient ^{2 4}	Steady-State		71	90	°C/W
Maximum Junction-to-Case	Steady-State	R _{θJC}	15	21	°C/W



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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain–Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{ V}, I_D = 250\text{ }\mu\text{A}$	30	--	--	V
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS} = V_{GS}, I_D = 250\text{ }\mu\text{A}$	1	1.5	2	V
Gate–Body Leakage Current	I_{GSS}	$V_{GS} = \pm 20\text{ V}, V_{DS} = 0\text{ V}$	--	--	± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 24\text{ V}, V_{GS} = 0\text{ V}$	--	--	1	μA
Drain–Source On–State Resistance	$R_{DS(ON)}$	$V_{GS} = 10\text{ V}, I_D = 5.8\text{ A}$	--	19	25	mR
		$V_{GS} = 4.5\text{ V}, I_D = 5\text{ A}$	--	32	40	
Forward Transconductance	G_{FS}	$V_{DS} = 5\text{ V}, I_D = 5\text{ A}$	10	15	--	S
Diode Forward Voltage	V_{SD}	$V_{GS} = 0\text{ V}, I_S = 1\text{ A}$	--	0.71	1	V
Input Capacitance	C_{ISS}	$V_{DS} = 15\text{ V}, V_{GS} = 0\text{ V},$ $f = 1.0\text{ MHz}$	--	402	--	pF
Output Capacitance	C_{OSS}		--	90	--	
Reverse Transfer Capacitance	C_{RSS}		--	63	--	
Turn–On Delay Time	$T_{D(ON)}$	$V_{DS} = 15\text{ V}, R_L = 2.3R,$	--	--	17	ns
Turn–Off Delay Tim	$T_{D(OFF)}$	$V_{GS} = 10\text{ V}, R_{GEN} = 3R$	--	--	67	

Note :

1. The power dissipation P_D is based on $T_{J(MAX)} = 150^\circ\text{C}$, using junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heat sinking is used.
2. The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ\text{C}$. The Power dissipation P_{DSM} is based on $R_{\theta JA} t \leq 10\text{s}$ value and the maximum allowed junction temperature of 150°C . The value in any given application depends on the user's specific board design.
3. Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)} = 150^\circ\text{C}$. Ratings are based on low frequency and duty cycles to keep initial $T_J = 25^\circ\text{C}$.
4. The $R_{\theta JA}$ is the sum of the thermal impedance from junction to case $R_{\theta JC}$ and case to ambient.

Typical Performance Characteristics

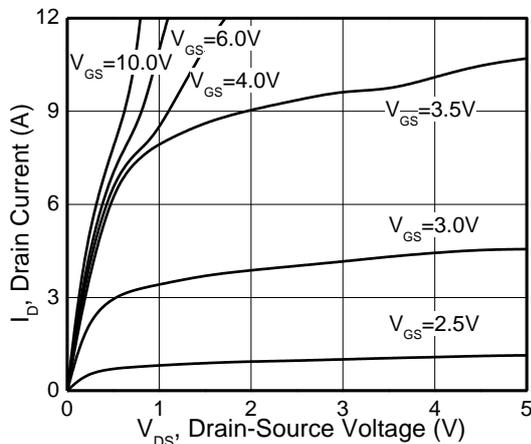


Figure 1. Output Characteristics

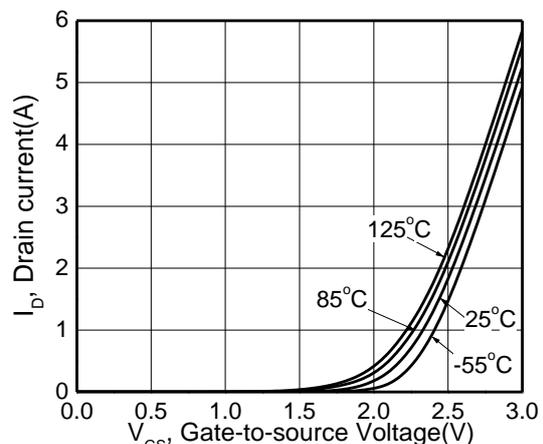


Figure 2. Transfer Characteristics

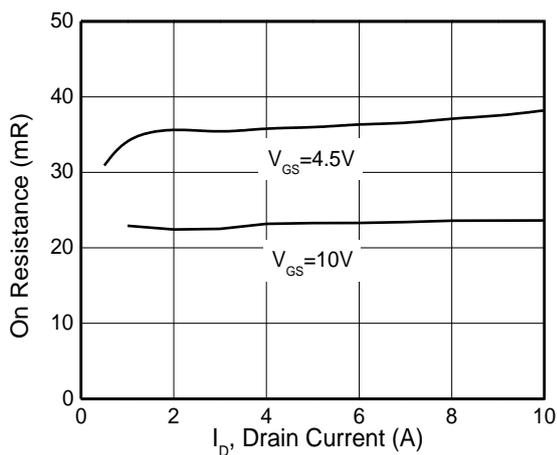


Figure 3. On Resistance vs. Drain Current

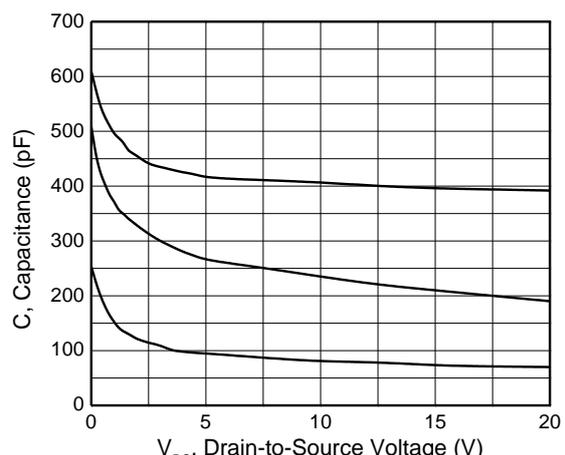


Figure 4. Capacitance

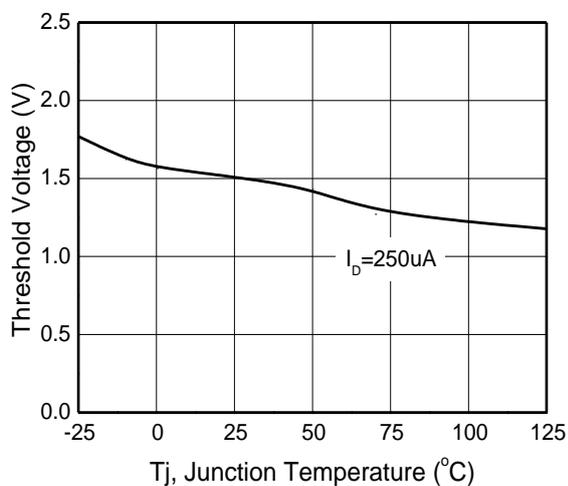


Figure 5. Gate Threshold vs. Temperature

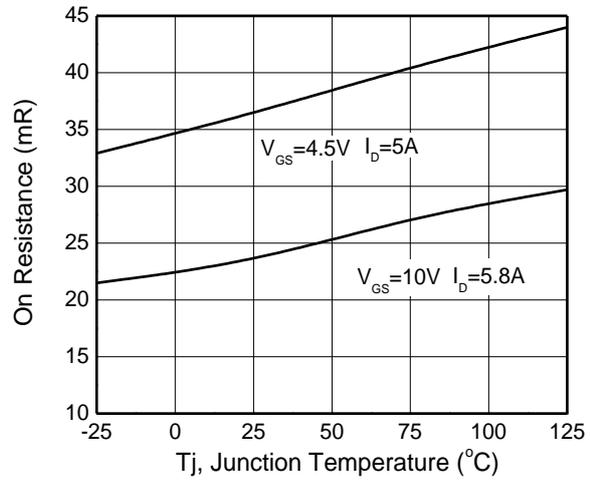


Figure 6. On Resistance vs. Temperature

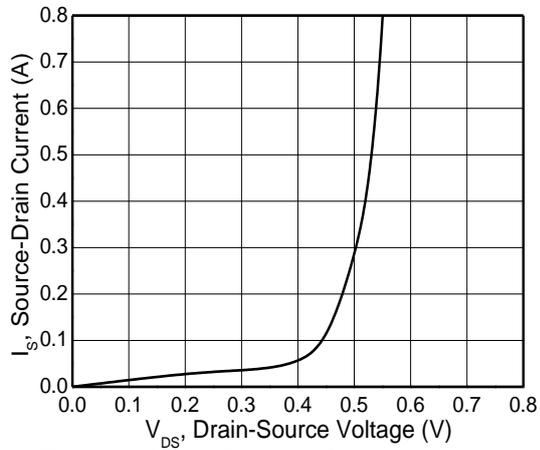


Figure 7. Diode Forward Characteristics

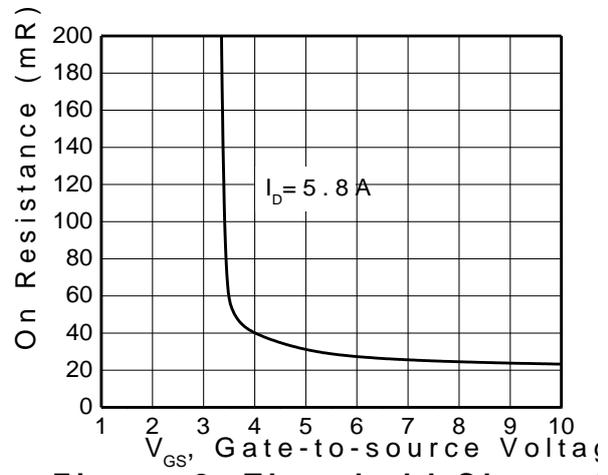


Figure 8. Threshold Characteristics



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