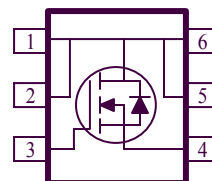
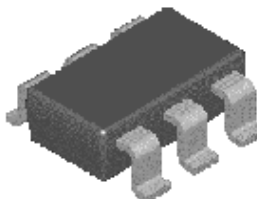


N-Channel 30V (D-S) MOSFET

These miniature surface mount MOSFETs utilize High Cell Density process. Low $r_{DS(on)}$ assures minimal power loss and conserves energy, making this device ideal for use in power management circuitry. Typical applications are power switch, power management in portable and battery-powered products such as computers, printers, PCMCIA cards, cellular and cordless telephones.

- Low $r_{DS(on)}$ Provides Higher Efficiency and Extends Battery Life
- Low Gate Charge
- Fast Switch
- Miniature TSOP-6 Surface Mount Package Saves Board Space

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
30	0.032 @ $V_{GS} = 10$ V	6.3
	0.044 @ $V_{GS} = 4.5$ V	5.4



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)			
Parameter	Symbol	Maximum	Units
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current ^a	I_D	$T_A = 25^\circ\text{C}$	6.3
		$T_A = 70^\circ\text{C}$	5.1
Pulsed Drain Current ^b	I_{DM}	± 30	A
Continuous Source Current (Diode Conduction) ^a	I_S	1.7	A
Power Dissipation ^a	P_D	$T_A = 25^\circ\text{C}$	2.0
		$T_A = 70^\circ\text{C}$	1.3
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 150	$^\circ\text{C}$

THERMAL RESISTANCE RATINGS			
Parameter	Symbol	Maximum	Units
Maximum Junction-to-Ambient ^a	$t \leq 5$ sec	62.5	$^\circ\text{C}/\text{W}$
	Steady-State	110	

Notes

- Surface Mounted on 1" x 1" FR4 Board.
- Pulse width limited by maximum junction temperature

SPECIFICATIONS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Conditions	Limits			Unit
			Min	Typ	Max	
Static						
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250 \mu\text{A}$	1.0		3.0	V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0 \text{ V}, V_{GS} = \pm 20 \text{ V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 24 \text{ V}, V_{GS} = 0 \text{ V}$			1	uA
		$V_{DS} = 24 \text{ V}, V_{GS} = 0 \text{ V}, T_J = 55^\circ\text{C}$			10	
On-State Drain Current ^A	$I_{D(on)}$	$V_{DS} = 5 \text{ V}, V_{GS} = 10 \text{ V}$	30			A
Drain-Source On-Resistance ^A	$r_{DS(on)}$	$V_{GS} = 10 \text{ V}, I_D = 6.3 \text{ A}$		36	44	m Ω
		$V_{GS} = 4.5 \text{ V}, I_D = 5.4 \text{ A}$		46	64	
Forward Transconductance ^A	g_{fs}	$V_{DS} = 10 \text{ V}, I_D = 6.3 \text{ A}$		45		S
Diode Forward Voltage	V_{SD}	$I_S = 1.7 \text{ A}, V_{GS} = 0 \text{ V}$		0.80	1.2	V
Dynamic^b						
Total Gate Charge	Q_g	$V_{DS} = 15 \text{ V}, V_{GS} = 5 \text{ V}, I_D = 6.3 \text{ A}$		4.7		nC
Gate-Source Charge	Q_{gs}			1.7		
Gate-Drain Charge	Q_{gd}			1.4		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 15 \text{ V}, R_L = 15 \Omega, I_D = 1 \text{ A},$ $V_{GEN} = 10 \text{ V}$		16		ns
Rise Time	t_r			5		
Turn-Off Delay Time	$t_{d(off)}$			23		
Fall-Time	t_f			3		
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = 1.7 \text{ A}, di/dt = 100 \text{ A/uS}$		41		

Notes

- Pulse test: $PW \leq 300\mu\text{s}$ duty cycle $\leq 2\%$.
- Guaranteed by design, not subject to production testing.

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