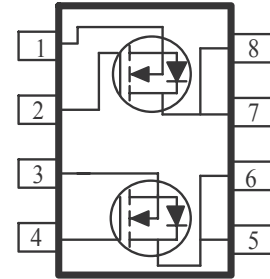
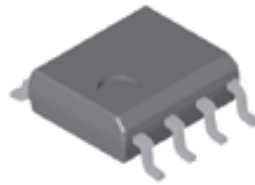


N-Channel 30-V (D-S) MOSFET

These miniature surface mount MOSFETs utilize a high cell density trench process to provide low $r_{DS(on)}$ and to ensure minimal power loss and heat dissipation. Typical applications are DC-DC converters and 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 thermal impedance copper leadframe SOIC-8 saves board space
- Fast switching speed
- High performance trench technology



PRODUCT SUMMARY

V_{DS} (V)	$r_{DS(on)}$ m(Ω)	I_D (A)
30	32 @ $V_{GS} = 4.5V$	6.5
	40 @ $V_{GS} = 2.5V$	5.8

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ C$ UNLESS OTHERWISE NOTED)

Parameter		Symbol	Limit	Units
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	± 12	
Continuous Drain Current ^a	$T_A = 25^\circ C$	I_D	6.5	A
	$T_A = 70^\circ C$		± 5.3	
Pulsed Drain Current ^b		I_{DM}	± 50	
Continuous Source Current (Diode Conduction) ^a		I_S	2.3	A
Power Dissipation ^a	$T_A = 25^\circ C$	P_D	2.0	W
	$T_A = 70^\circ C$		1.3	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150	$^\circ C$

THERMAL RESISTANCE RATINGS

Parameter		Symbol	Maximum	Units
Maximum Junction-to-Ambient ^a	$t \leq 10$ sec	$R_{\theta JA}$	62.5	$^\circ C/W$
	Steady-State		110	$^\circ C/W$

Notes

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

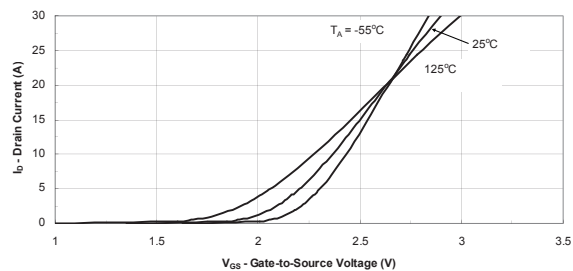
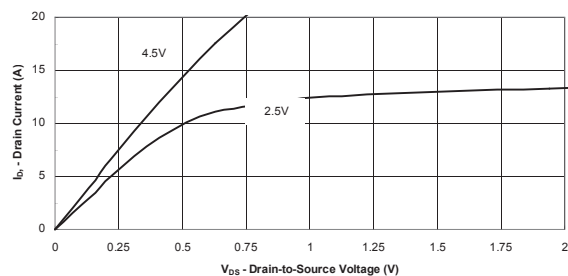
SPECIFICATIONS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

Parameter	Symbol	Test Conditions	Limits			Unit
			Min	Typ	Max	
Static						
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250 \text{ uA}$	0.7			
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0 \text{ V}, V_{GS} = \pm 12 \text{ V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 24 \text{ V}, V_{GS} = 0 \text{ V}$			1	uA
		$V_{DS} = 24 \text{ V}, V_{GS} = 0 \text{ V}, T_J = 55^{\circ}\text{C}$			25	
On-State Drain Current ^A	$I_{D(on)}$	$V_{DS} = 5 \text{ V}, V_{GS} = \pm 12 \text{ V}$	20			A
Drain-Source On-Resistance ^A	$r_{DS(on)}$	$V_{GS} = 4.5 \text{ V}, I_D = 6.5 \text{ A}$			32	mΩ
		$V_{GS} = 2.5 \text{ V}, I_D = 5.8 \text{ A}$			40	
Forward Tranconductance ^A	g_{fs}	$V_{DS} = 15 \text{ V}, I_D = 6.5 \text{ A}$		40		S
Diode Forward Voltage	V_{SD}	$I_S = 2.3 \text{ A}, V_{GS} = 0 \text{ V}$		0.7		V
Dynamic ^b						
Total Gate Charge	Q_g	$V_{DS} = 15 \text{ V}, V_{GS} = 4.5 \text{ V},$ $I_D = 6.5 \text{ A}$		6.0		nC
Gate-Source Charge	Q_{gs}			1.0		
Gate-Drain Charge	Q_{gd}			1.5		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 25 \text{ V}, R_L = 25 \text{ } \Omega \text{ , } I_D = 1 \text{ A},$ $V_{GEN} = 10 \text{ V}$		20		nS
Rise Time	t_r			9		
Turn-Off Delay Time	$t_{d(off)}$			70		
Fall-Time	t_f			20		

Notes

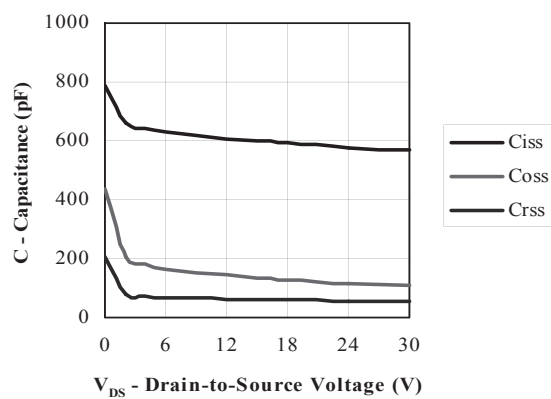
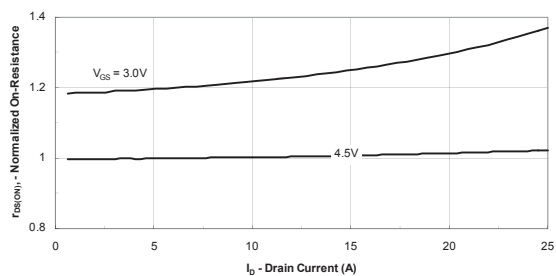
- Pulse test: $PW \leq 300\mu\text{s}$ duty cycle $\leq 2\%$.
- Guaranteed by design, not subject to production testing.

Typical Electrical Characteristics



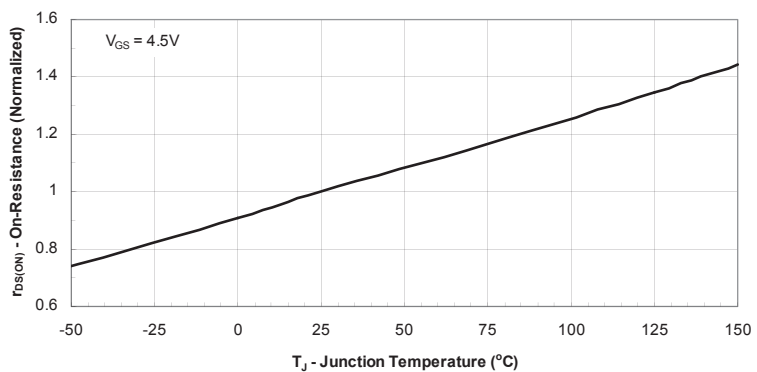
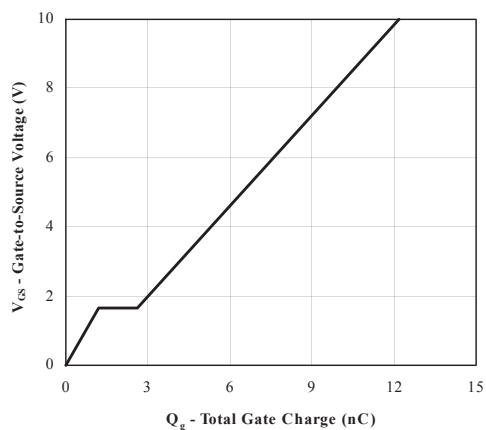
Output Characteristics

Transfer Characteristics



On-Resistance vs. Drain Current

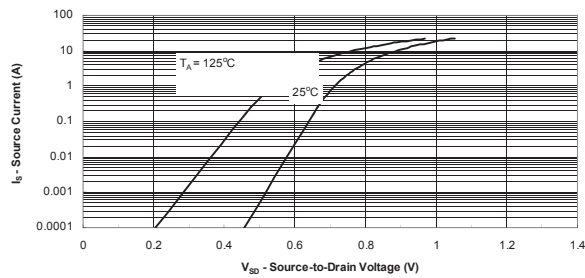
Capacitance



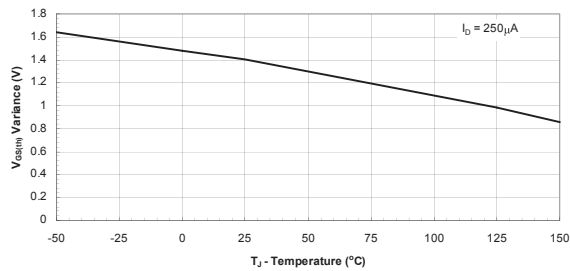
Gate Charge

On-Resistance vs. Junction Temperature

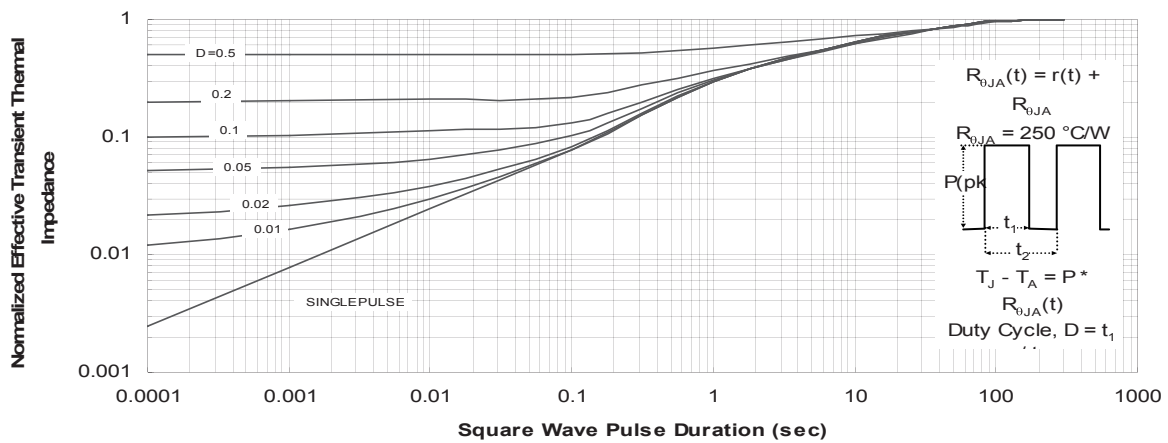
Typical Electrical Characteristics (N-Channel)



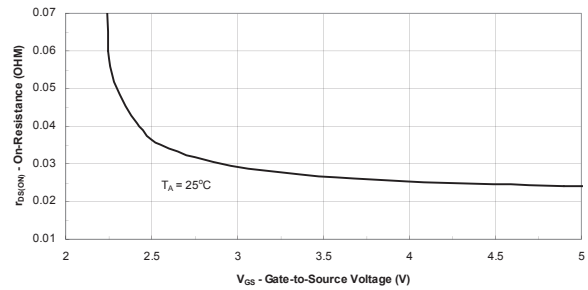
Source-Drain Diode Forward Voltage



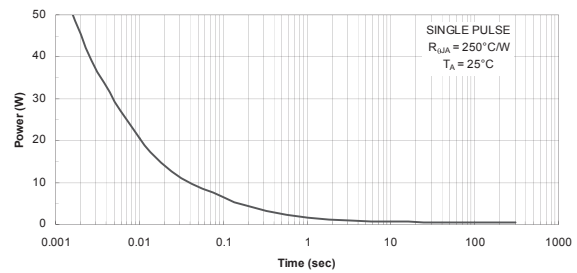
Threshold Voltage



Normalized Thermal Transient Impedance, Junction-to-Ambient

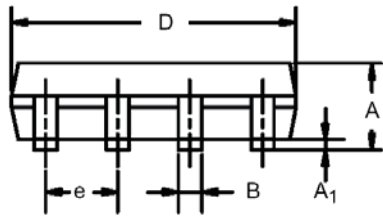
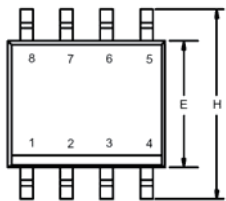


On-Resistance vs. Gate-to Source Voltage



Package Information

SO-8: 8LEAD



Dim	MILLIMETERS		INCHES	
	Min	Max	Min	Max
A	1.35	1.75	0.053	0.069
A ₁	0.10	0.20	0.004	0.008
B	0.35	0.51	0.014	0.020
C	0.19	0.25	0.0075	0.010
D	4.80	5.00	0.189	0.196
E	3.80	4.00	0.150	0.157
e	1.27 BSC		0.050 BSC	
H	5.80	6.20	0.228	0.244
h	0.25	0.50	0.010	0.020
L	0.50	0.93	0.020	0.037
q	0°	8°	0°	8°

