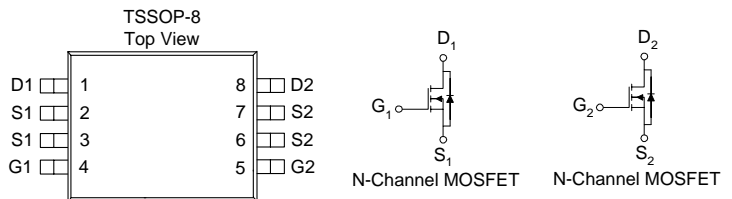


Dual N-Channel Logical Level MOSFET

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 TSSOP-8 saves board space
- Fast switching speed
- High performance trench technology

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (OHM)	I_D (A)
20	0.022 @ $V_{GS} = 4.5$ V	6.8
	0.030 @ $V_{GS} = 2.5$ V	5.8
	0.047 @ $V_{GS} = 1.8$ V	4.7



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)			
Parameter	Symbol	Maximum	Units
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 12	
Continuous Drain Current ^a	I_D	$T_A = 25^\circ\text{C}$	6.8
		$T_A = 70^\circ\text{C}$	5.4
Pulsed Drain Current ^b	I_{DM}	± 30	A
Continuous Source Current (Diode Conduction) ^a	I_S	1.5	A
Power Dissipation ^a	P_D	$T_A = 25^\circ\text{C}$	1.5
		$T_A = 70^\circ\text{C}$	1.0
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 150	$^\circ\text{C}$

THERMAL RESISTANCE RATINGS				
Parameter	Symbol	Typ	Max	
Maximum Junction-to-Ambient ^a	R_{thJA}	$t \leq 10$ sec	72	83
		Steady State	100	120
				$^\circ\text{C/W}$

Notes

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

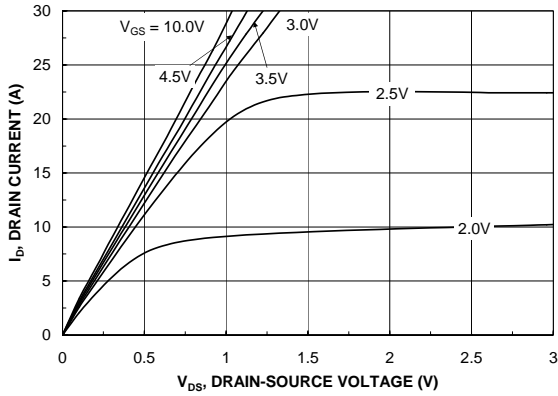
SPECIFICATIONS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Conditions				Unit
			Min	Typ	Max	
Static						
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{GS} = V_{DS}, I_D = 250 \text{ uA}$	0.7			V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0 \text{ V}, V_{GS} = \pm 12 \text{ V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 16 \text{ V}, V_{GS} = 0 \text{ V}$			1	uA
		$V_{DS} = 16 \text{ V}, V_{GS} = 0 \text{ V}, T_J = 55^\circ\text{C}$			10	uA
On-State Drain Current ^A	$I_{D(on)}$	$V_{DS} = 5 \text{ V}, V_{GS} = 4.5 \text{ V}$	30			A
Drain-Source On-Resistance ^A	$r_{DS(on)}$	$V_{GS} = 4.5 \text{ V}, I_D = 6.8 \text{ A}$			0.022	Ω
		$V_{GS} = 2.5 \text{ V}, I_D = 5.8 \text{ A}$			0.030	
		$V_{GS} = 1.8 \text{ V}, I_D = 4.7 \text{ A}$			0.047	
Forward Transconductance ^A	g_{fs}	$V_{DS} = 10 \text{ V}, I_D = 6.8 \text{ A}$		25		S
Diode Forward Voltage ^A	V_{SD}	$I_S = 6.8 \text{ A}, V_{GS} = 0 \text{ V}$		0.89		V
Dynamic^b						
Total Gate Charge	Q_g	$V_{DS}=10\text{V}, V_{GS}=4.5\text{V}, I_D=6.8\text{A}$		13.4		nC
Gate-Source Charge	Q_{gs}			0.9		
Gate-Drain Charge	Q_{gd}			2.0		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=10\text{V}, V_{GS}=4.5\text{V}, I_D=1\text{A}$, $R_{GEN}=10\Omega$		18		nS
Rise Time	t_r			25		
Turn-Off Delay Time	$t_{d(off)}$			50		
Fall-Time	t_f			25		

Notes

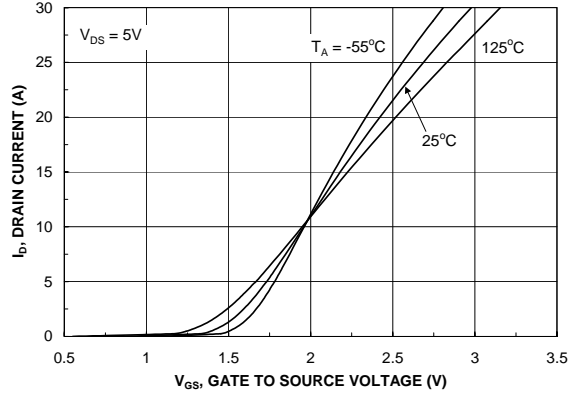
- Pulse test: $PW \leq 300\mu\text{s}$ duty cycle $\leq 2\%$.
- Guaranteed by design, not subject to production testing.

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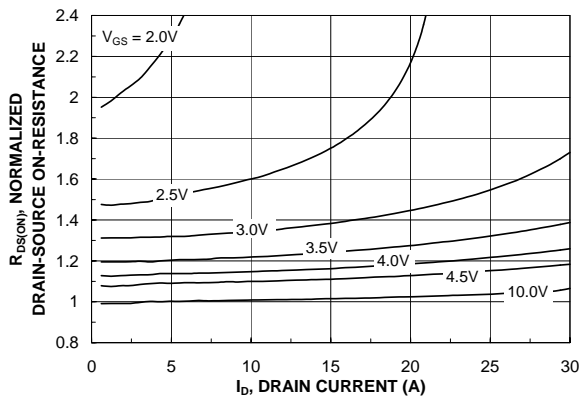
Typical Electrical Characteristics (N-Channel)



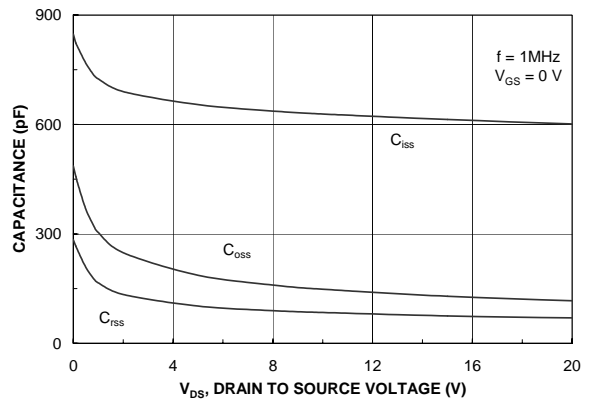
Output Characteristics



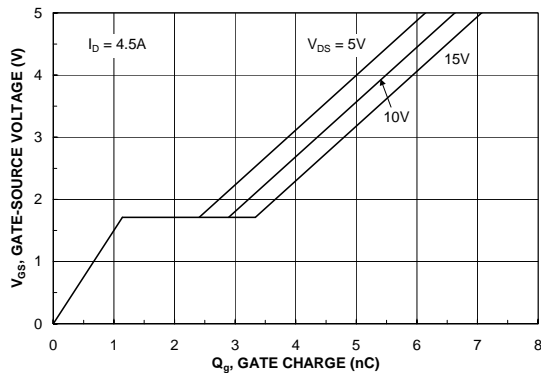
Transfer Characteristics



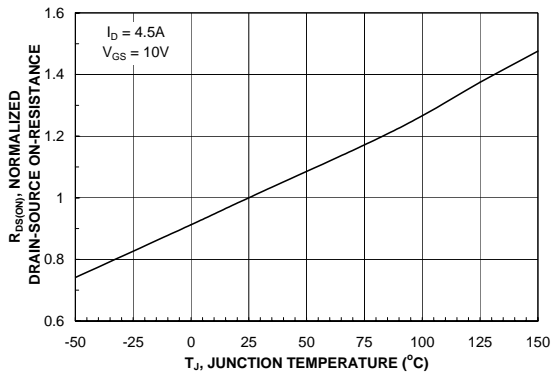
On-Resistance vs. Drain Current



Capacitance

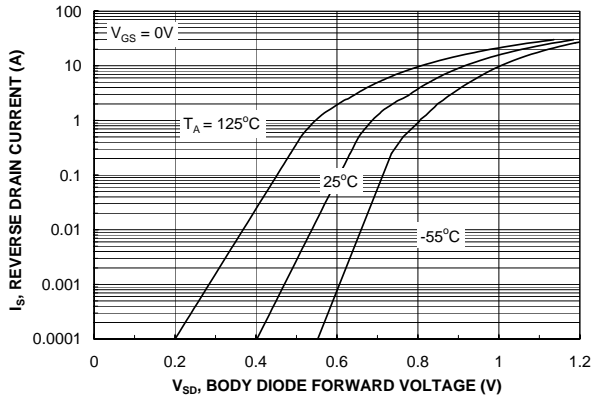


Gate Charge

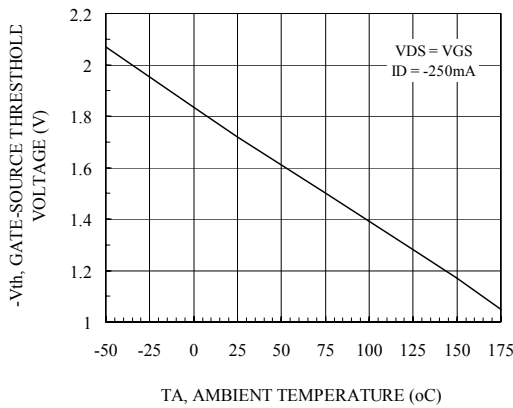


On-Resistance vs. Junction Temperature

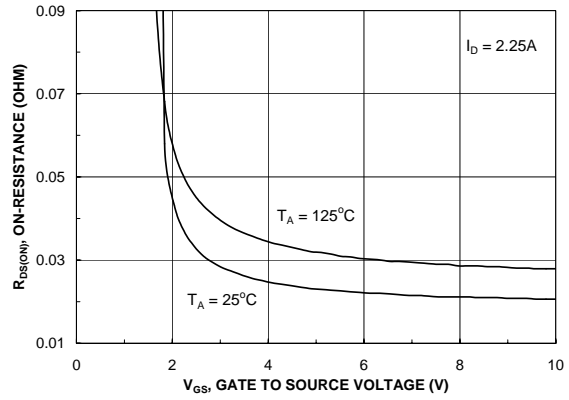
Typical Electrical Characteristics (N-Channel)



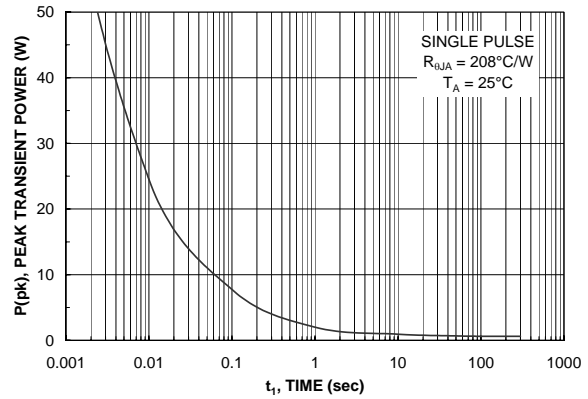
Source-Drain Diode Forward Voltage



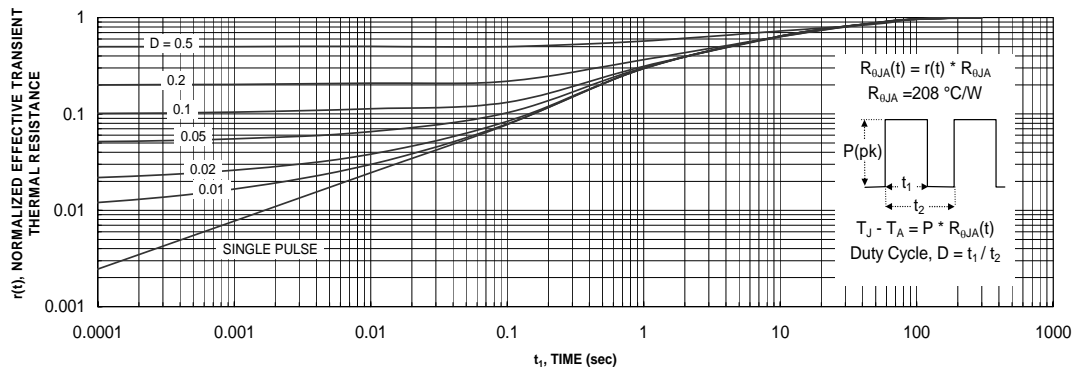
Vth Gate to Source Voltage Vs Temperature



On-Resistance vs. Gate-to-Source Voltage



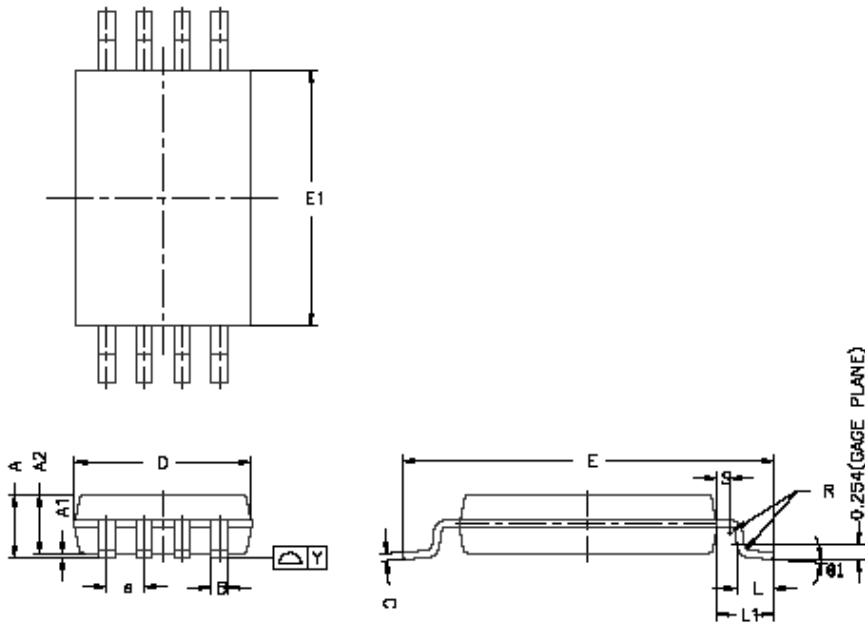
Single Pulse Power, Junction-to-Ambient



Normalized Thermal Transient Junction to Ambient

Package Information

TSSOP-8: 8LEAD



DIM.	MILLIMETERS		
	MIN.	NDM.	MAX.
A	1.05	1.10	1.20
A(1)	0.05	0.10	0.15
A(2)	0.99	1.02	1.05
B	0.19	0.25	0.30
C	---	0.127	---
D	2.90	3.00	3.10
E	6.20	6.40	6.60
E1	4.30	4.40	4.50
b	0.635C		
L	0.45	0.60	0.75
L1	0.90	1.00	1.10
Y	---	---	0.10
Ø1	D	F	B'
R	0.09	---	---
S	0.20	---	---