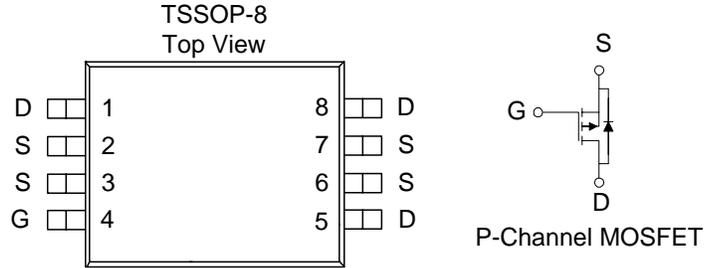


P-Channel 20-V (D-S) MOSFET

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

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ m(Ω)	I_D (A)
-20	13 @ $V_{GS} = -4.5V$	-9.5
	19 @ $V_{GS} = -2.5V$	-7.9
	35 @ $V_{GS} = -1.8V$	-5.8



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ C$ 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	$T_A = 25^\circ C$	-9.5
		$T_A = 70^\circ C$	-7.7
Pulsed Drain Current ^b	I_{DM}	-30	A
Continuous Source Current (Diode Conduction) ^a	I_S	-1.5	A
Power Dissipation ^a	P_D	$T_A = 25^\circ C$	1.8
		$T_A = 70^\circ C$	1.2
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	$R_{\theta JA}$	t \leq 10 sec	70
		Steady State	115

Notes

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

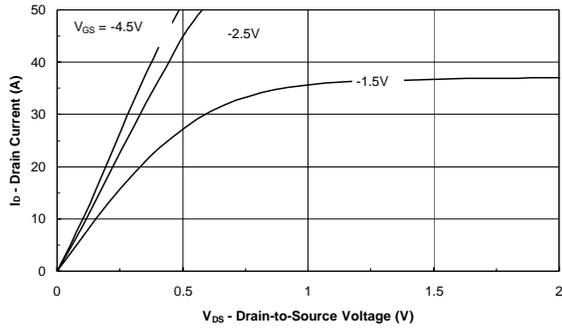
SPECIFICATIONS (T _A = 25°C UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Conditions	Limits			Unit
			Min	Typ	Max	
Static						
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250 uA	-0.7			
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±12 V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -16 V, V _{GS} = 0 V			-1	uA
		V _{DS} = -16 V, V _{GS} = 0 V, T _J = 55°C			-10	
On-State Drain Current ^A	I _{D(on)}	V _{DS} = -5 V, V _{GS} = -4.5 V	-20			A
Drain-Source On-Resistance ^A	r _{DS(on)}	V _{GS} = -4.5 V, I _D = -9.5 A			13	mΩ
		V _{GS} = -2.5 V, I _D = -7.9 A			19	
		V _{GS} = -1.8 V, I _D = -5.8 A			35	
Forward Transconductance ^A	g _s	V _{DS} = -15 V, I _D = -9.5 A		45		S
Diode Forward Voltage	V _{SD}	I _S = 1.5 A, V _{GS} = 0 V		-0.6		V
Dynamic^b						
Total Gate Charge	Q _g	V _{DS} = -10 V, V _{GS} = -4.5 V, I _D = -9.5 A		55.0		nC
Gate-Source Charge	Q _{gs}			7.2		
Gate-Drain Charge	Q _{gd}			12.0		
Turn-On Delay Time	t _{d(on)}	V _{DD} = -10 V, R _L = 6 Ω, I _D = -1 A, V _{GEN} = -4.5 V		45		nS
Rise Time	t _r			75		
Turn-Off Delay Time	t _{d(off)}			240		
Fall-Time	t _f			110		

Notes

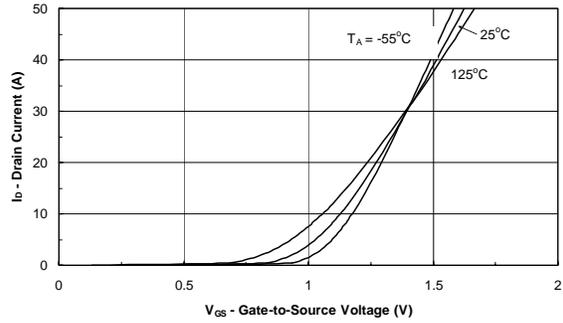
- Pulse test: PW ≤ 300us duty cycle ≤ 2%.
- Guaranteed by design, not subject to production testing.

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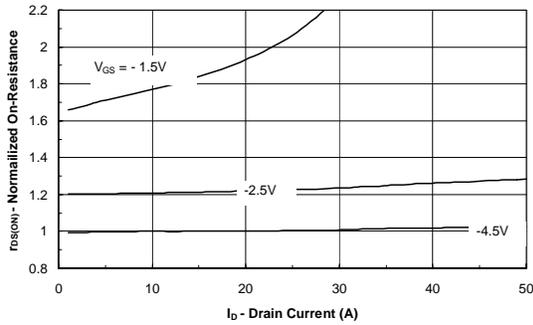
Typical Electrical Characteristics



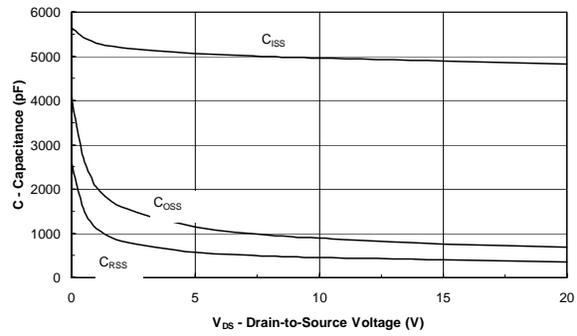
Output Characteristics



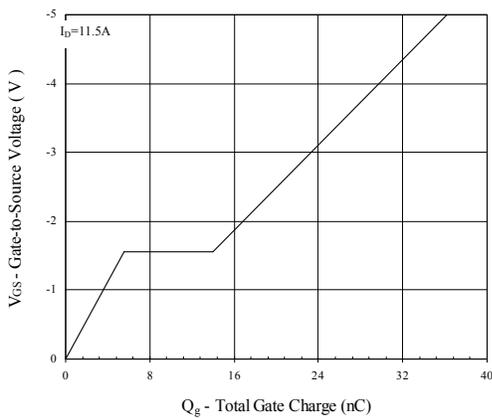
Transfer Characteristics



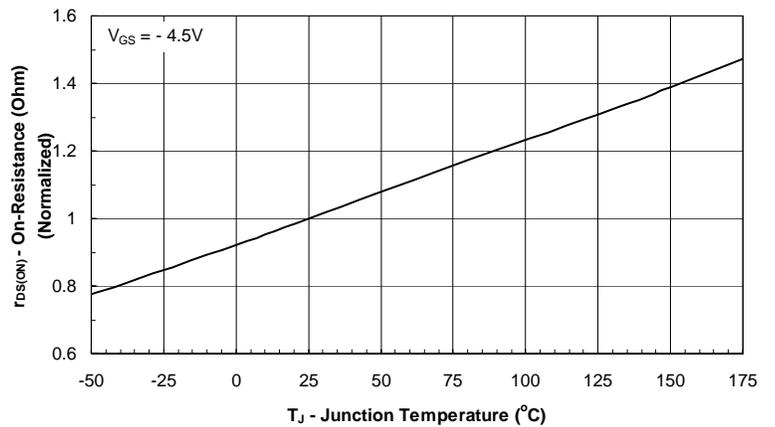
On-Resistance vs. Drain Current



Capacitance

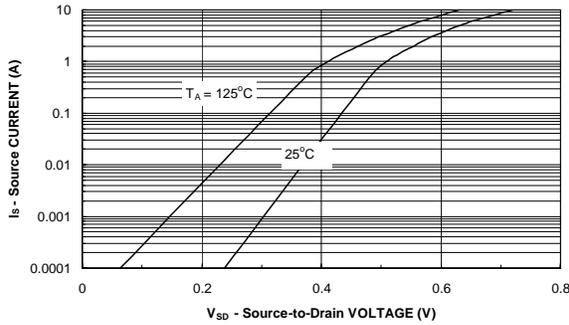


Gate Charge

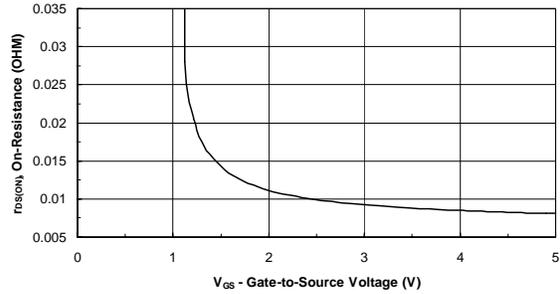


On-Resistance vs. Junction Temperature

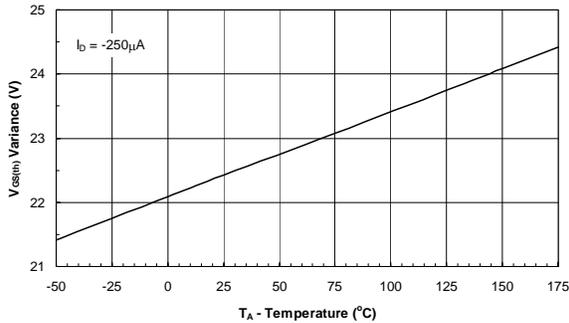
Typical Electrical Characteristics



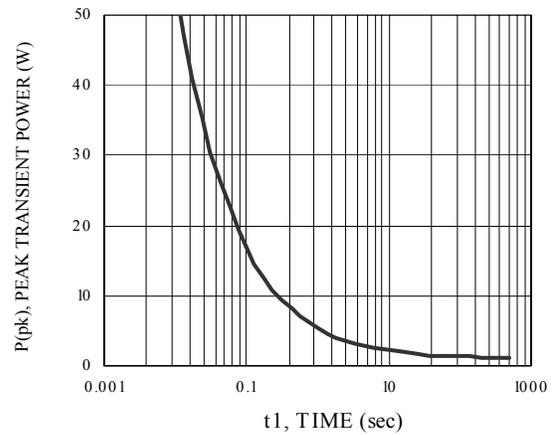
Source-Drain Diode Forward Voltage



On-Resistance vs. Gate-to-Source Voltage

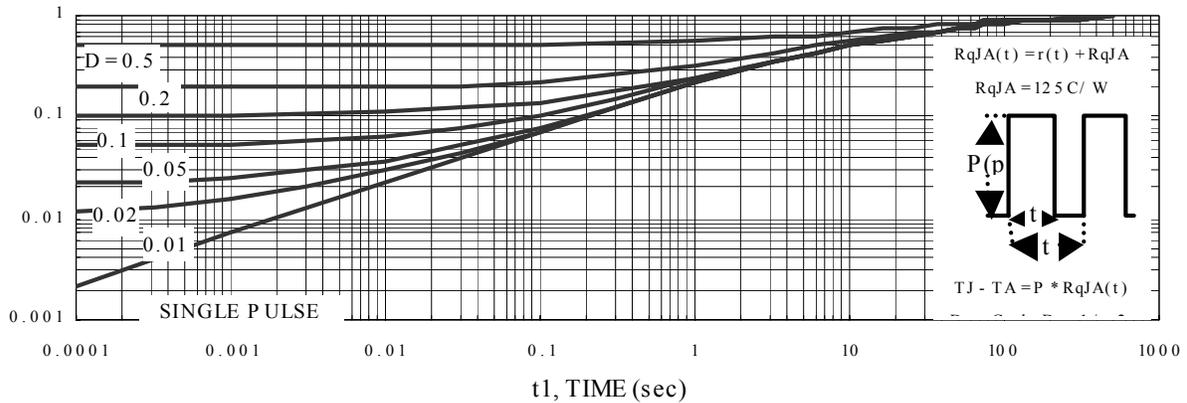


Threshold Voltage



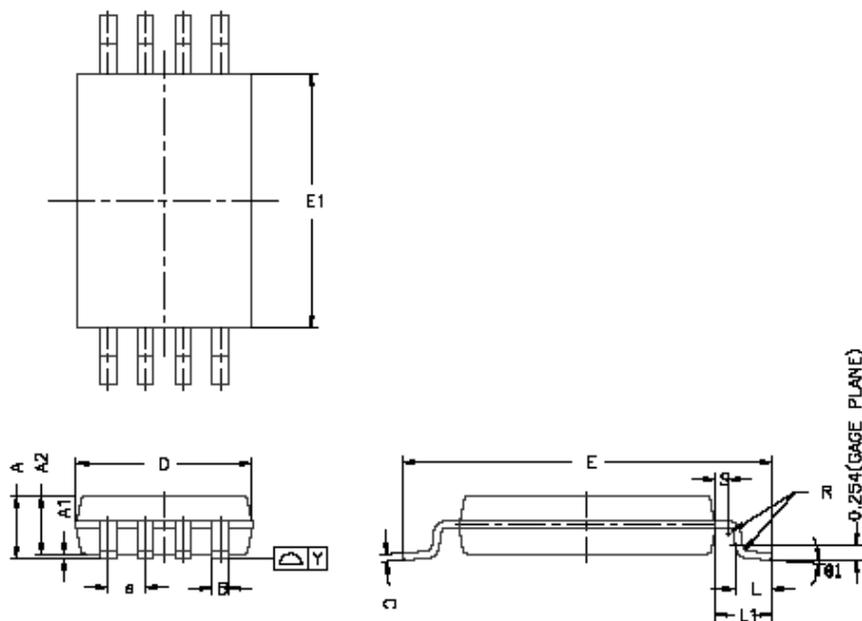
Single Pulse Power, Junction-to-Ambient

Normalized Thermal Transient Impedance, 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	Ø	Ø	Ø
R	0.09	---	---
S	0.20	---	---