

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 DFN 3x3 saves board space
- Fast switching speed
- High performance trench technology

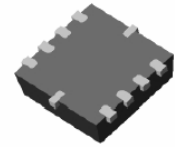
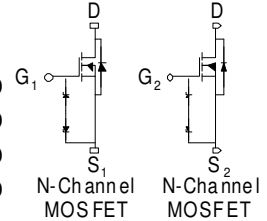
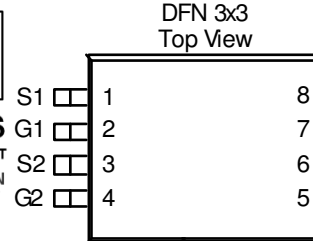
PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (OHM)	I_D (A)
20	0.015 @ $V_{GS} = 4.5$ V	8.2
	0.018 @ $V_{GS} = 2.5$ V	7.5



RoHS COMPLIANT HALOGEN FREE



ESD Protected
2000V



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}	± 8	
Continuous Drain Current ^a	I_D	$T_A=25^\circ\text{C}$	8.2
		$T_A=70^\circ\text{C}$	6.7
Pulsed Drain Current ^b	I_{DM}	± 40	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

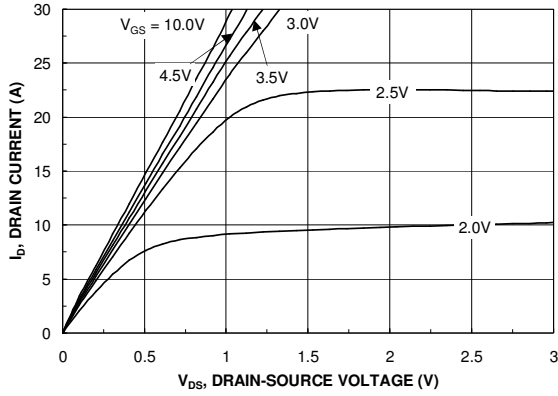
SPECIFICATIONS (T _A = 25° C UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Conditions				Unit
			Min	Typ	Max	
Static						
Gate-Threshold Voltage	V _{GS(th)}	V _{GS} = V _{DS} , I _D = 250 uA	0.4			V
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ± 12 V			±100	nA
Zero Gate Voltage Drain Current	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	uA
On-State Drain Current ^A	I _{D(on)}	V _{DS} = 5 V, V _{GS} = 4.5 V	30			A
Drain-Source On-Resistance ^A	r _{DS(on)}	V _{GS} = 4.5 V, I _D = 2 A			0.015	Ω
		V _{GS} = 2.5 V, I _D = 2 A			0.018	
Forward Transconductance ^A	g _{fs}	V _{DS} = 10 V, I _D = 2 A		25		S
Diode Forward Voltage ^A	V _{SD}	I _S = 2 A, V _{GS} = 0 V		0.89		V
Dynamic^b						
Total Gate Charge	Q _g	V _{DS} =10V, V _{GS} =4.5V, I _D =2A		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} =10V, V _{GS} =4.5V, I _D =1A , R _{GEN} =10Ω		18		nS
Rise Time	t _r			25		
Turn-Off Delay Time	t _{d(off)}			50		
Fall-Time	t _f			25		

Notes

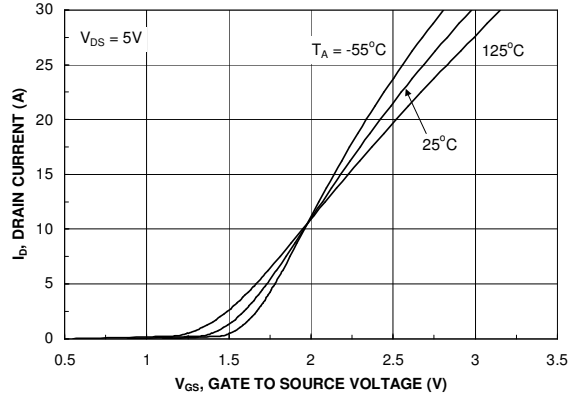
- a. Pulse test: PW <= 300us duty cycle <= 2%.
- b. Guaranteed by design, not subject to production testing.

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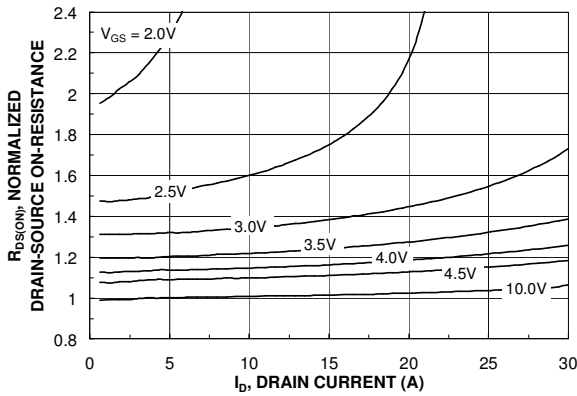
Typical Electrical Characteristics (N-Channel)



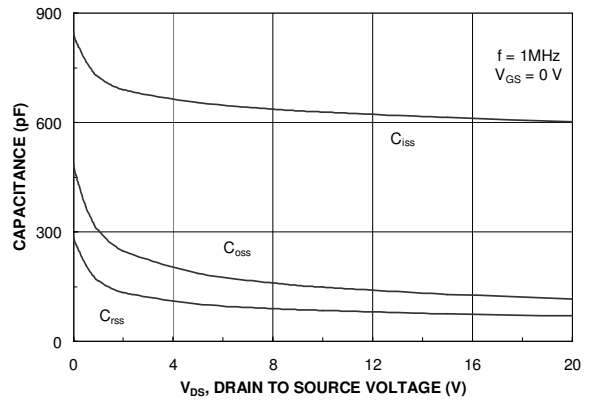
Output Characteristics



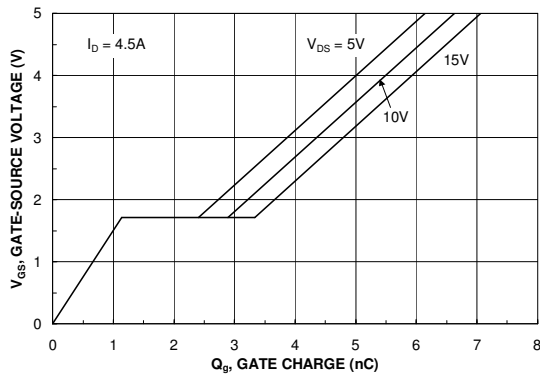
Transfer Characteristics



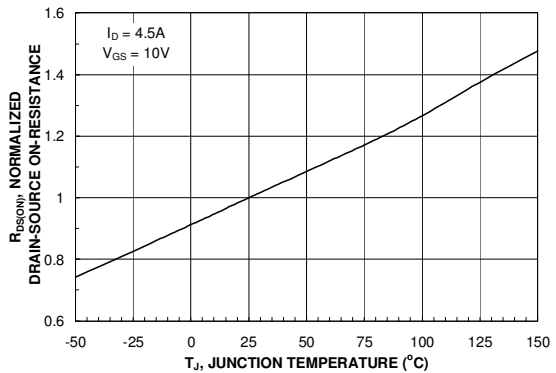
On-Resistance vs. Drain Current



Capacitance

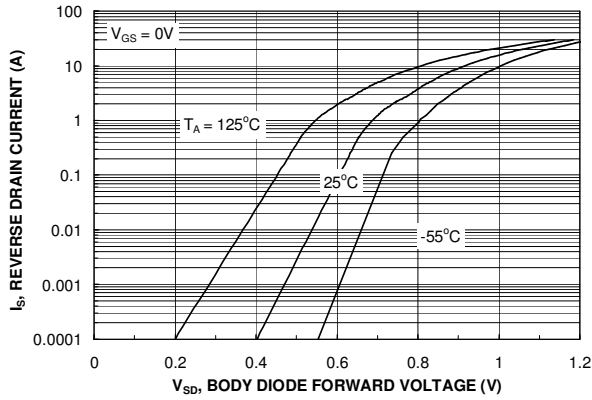


Gate Charge

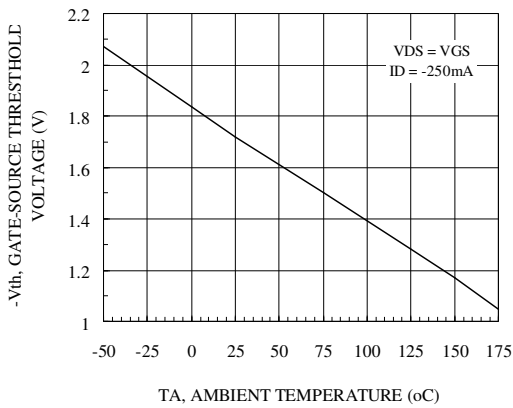


On-Resistance vs. Junction Temperature

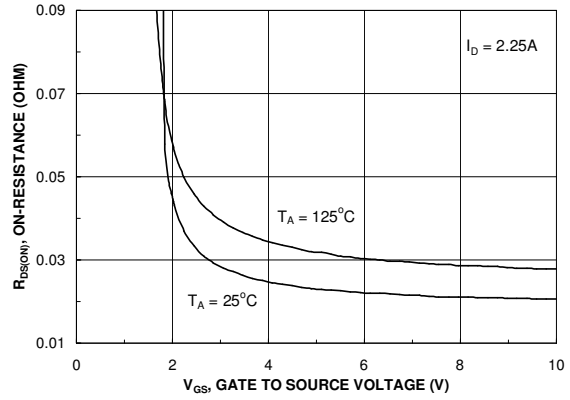
Typical Electrical Characteristics (N-Channel)



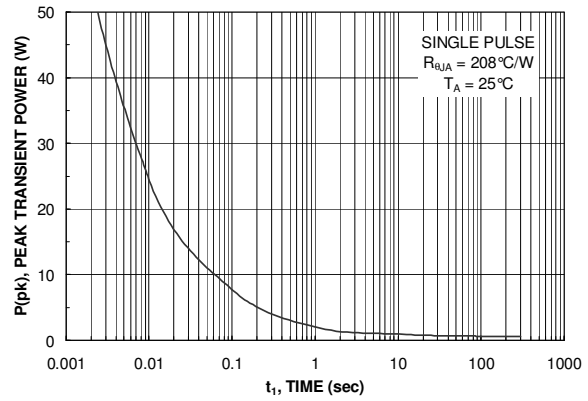
Source-Drain Diode Forward Voltage



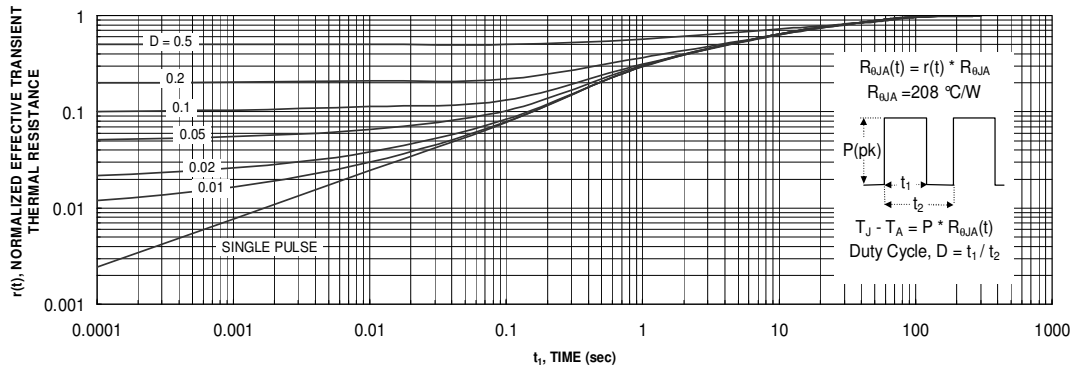
Vth Gate to Source Voltage Vs Temperature



On-Resistance vs. Gate-to-Source Voltage



Single Pulse Power, Junction-to-Ambient



Normalized Thermal Transient Junction to Ambient

Package Information

