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

Key Features:

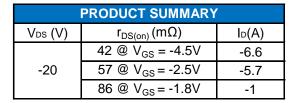
- Low r_{DS(on)} trench technology
- · Low thermal impedance
- 2mm x 2mm footprint DFN package
- · RDS rated at 1.8V Gate-drive

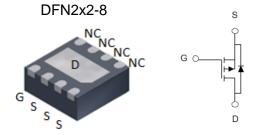
Typical Applications:

- Battery Powered Instruments
- Portable Computing
- Mobile Phones
- · GPS Units and Media Players

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ABSOLUTE MAXIMUM RATINGS ($T_A = 25^{\circ}$ C UNLESS OTHERWISE NOTED)						
Parameter			Limit	Units		
Drain-Source Voltage		V_{DS}	-20	V		
Gate-Source Voltage			±8	V		
Continuous Drain Current ^a	T _A =25°C	I _D	-6.6			
Continuous Drain Current	T _A =70°C		-5.3	Α		
Pulsed Drain Current ^b			-20			
Continuous Source Current (Diode Conduction) a		I _S	4	Α		
Power Dissipation ^a	T _A =25°C	P_{D}	3	W		
Power Dissipation	T _A =70°C	' D	1.92	VV		
Operating Junction and Storage Temperature Range			-55 to 150	°C		

THERMAL RESISTANCE RATINGS						
Parameter		Symbol	Maximum	Units		
Maximum Junction-to-Ambient ^a	t <= 5 sec	$R_{\theta JA}$	40	°C/W		
	Steady State	IXOJA	90			

Notes

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

Electrical Characteristics

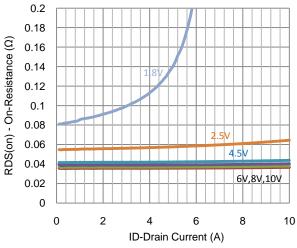
Parameter	Symbol	Test Conditions	Min	Тур	Max	Unit	
Static							
Gate-Source Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_{D} = -250 \text{ uA}$	-0.4			V	
Gate-Body Leakage	I _{GSS}	$V_{DS} = 0 \text{ V}, V_{GS} = -8 \text{ V}$			±100	nA	
Zero Gate Voltage Drain Current		$V_{DS} = -16 \text{ V}, V_{GS} = 0 \text{ V}$			1	uA	
	I _{DSS}	$V_{DS} = -16 \text{ V}, V_{GS} = 0 \text{ V}, T_{J} = 55^{\circ}\text{C}$			25		
On-State Drain Current	I _{D(on)}	$V_{DS} = -5 \text{ V}, V_{GS} = -4.5 \text{ V}$	-10			Α	
		$V_{GS} = -4.5 \text{ V}, I_D = -4.4 \text{ A}$			42		
Drain-Source On-Resistance	r _{DS(on)}	$V_{GS} = -2.5 \text{ V}, I_D = -3.6 \text{ A}$			57	mΩ	
		$V_{GS} = -1.8 \text{ V}, I_D = -1 \text{ A}$			86		
Forward Transconductance	g _{fs}	$V_{DS} = -15 \text{ V}, I_{D} = -4.4 \text{ A}$		20		S	
Diode Forward Voltage	V_{SD}	$I_{S} = -2 \text{ A}, V_{GS} = 0 \text{ V}$		0.83		V	
	Dynamic						
Total Gate Charge	Q_g	$V_{DS} = -10 \text{ V}, V_{GS} = -4.5 \text{ V},$ $I_{D} = -4.4 \text{ A}$		6.8			
Gate-Source Charge	Q_{gs}			1.8		nC	
Gate-Drain Charge	Q_{gd}			2.3			
Turn-On Delay Time	t _{d(on)}	V_{DD} = -10 V, R_{L} = 2.3 Ω , I_{D} = -4.4 A, V_{GEN} = -4.5 V, R_{GEN} = 6 Ω		6			
Rise Time	t _r			6		ns	
Turn-Off Delay Time	t _{d(off)}			23			
Fall Time	t _f			15			
Input Capacitance	C _{iss}	V _{DS} = -15 V, V _{GS} = 0 V, f = 1 MHz		837			
Output Capacitance	C _{oss}			98		pF	
Reverse Transfer Capacitance	C_{rss}			75			
Gate Resistance	R_g	f = 1 MHz		3.7		Ω	

Notes

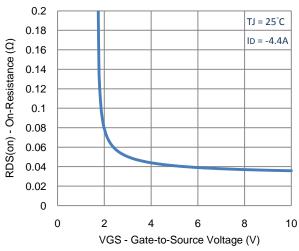
- a. Pulse test: PW <= 300us duty cycle <= 2%.
- b. Guaranteed by design, not subject to production testing.

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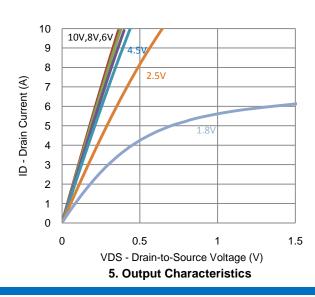
Typical Electrical Characteristics

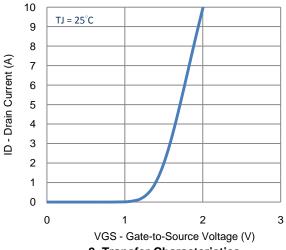


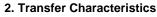
1. On-Resistance vs. Drain Current

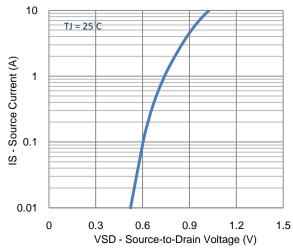


3. On-Resistance vs. Gate-to-Source Voltage

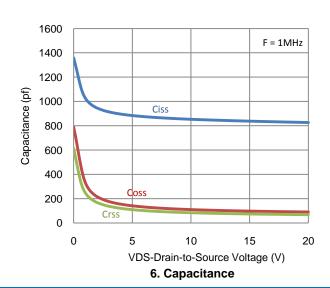




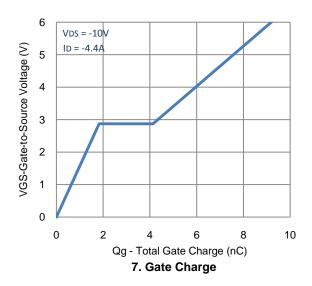


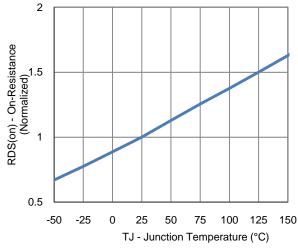


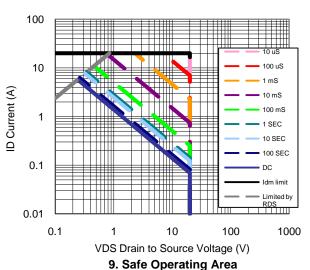
4. Drain-to-Source Forward Voltage



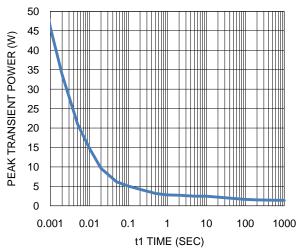
Typical Electrical Characteristics



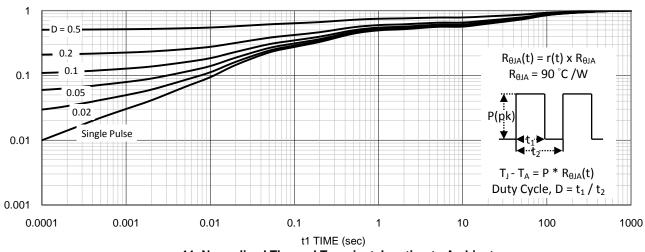








10. Single Pulse Maximum Power Dissipation



Package Information

