

P-Channel 100-V (D-S) MOSFET

Key Features:

- Low $r_{DS(on)}$ trench technology
- Low thermal impedance
- Fast switching speed

Typical Applications:

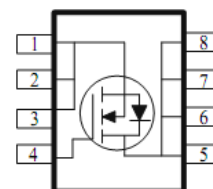
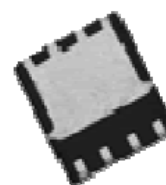
- White LED boost converters
- Automotive Systems
- Industrial DC/DC Conversion Circuits

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (m Ω)	I_D (A)
-100	229 @ $V_{GS} = -10V$	-3.8
	248 @ $V_{GS} = -4.5V$	-3.7



RoHS
COMPLIANT
HALOGEN
FREE

DFN5x6-8L



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)				
Parameter		Symbol	Limit	Units
Drain-Source Voltage		V_{DS}	-100	V
Gate-Source Voltage		V_{GS}	± 20	
Continuous Drain Current ^a	$T_A = 25^\circ\text{C}$	I_D	-3.8	A
	$T_A = 70^\circ\text{C}$		-3.1	
Pulsed Drain Current ^b		I_{DM}	-20	
Continuous Source Current (Diode Conduction) ^a		I_S	-6	A
Power Dissipation ^a	$T_A = 25^\circ\text{C}$	P_D	5	W
	$T_A = 70^\circ\text{C}$		3.2	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150	$^\circ\text{C}$

THERMAL RESISTANCE RATINGS				
Parameter		Symbol	Maximum	Units
Maximum Junction-to-Ambient ^a	$t \leq 10$ sec	$R_{\theta JA}$	25	$^\circ\text{C/W}$
	Steady State		65	

Notes

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

Electrical Characteristics

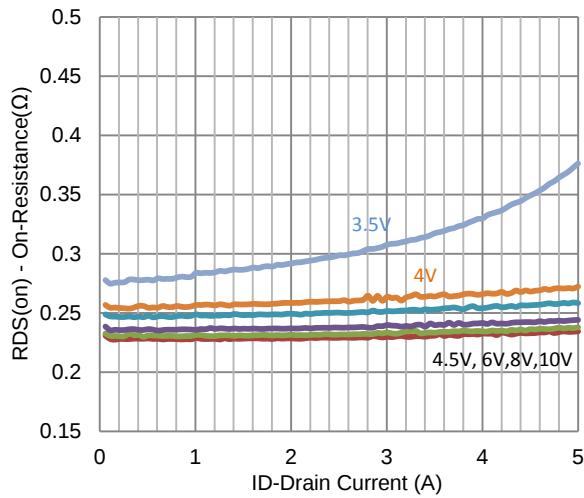
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Gate-Source Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250 \mu A$	-1			V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0 V, V_{GS} = \pm 20 V$			± 10	μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -80 V, V_{GS} = 0 V$			-1	μA
		$V_{DS} = -80 V, V_{GS} = 0 V, T_J = 55^\circ C$			-5	
On-State Drain Current	$I_{D(on)}$	$V_{DS} = -5 V, V_{GS} = -10 V$	-1.9			A
Drain-Source On-Resistance	$r_{DS(on)}$	$V_{GS} = -10 V, I_D = -3.0 A$			229	m Ω
		$V_{GS} = -4.5 V, I_D = -2.9 A$			248	
Forward Transconductance	g_{fs}	$V_{DS} = -15 V, I_D = -3.0 A$		10		S
Diode Forward Voltage	V_{SD}	$I_S = -2.9 A, V_{GS} = 0 V$		0.8		V
Dynamic						
Total Gate Charge	Q_g	$V_{DS} = -50 V, V_{GS} = -4.5 V, I_D = -3 A$		9.8		nC
Gate-Source Charge	Q_{gs}			3.9		
Gate-Drain Charge	Q_{gd}			4.6		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -50 V, R_L = 16.7 \Omega, I_D = -3 A,$ $V_{GEN} = -10 V, R_{GEN} = 6 \Omega$		5		ns
Rise Time	t_r			12		
Turn-Off Delay Time	$t_{d(off)}$			50		
Fall Time	t_f			48		
Input Capacitance	C_{iss}	$V_{DS} = -15 V, V_{GS} = 0 V, f = 1 MHz$		1222		pF
Output Capacitance	C_{oss}			128		
Reverse Transfer Capacitance	C_{rss}			63		

Notes

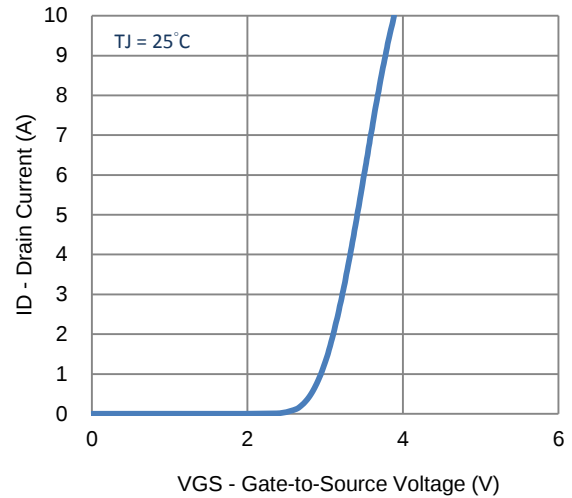
- Pulse test: PW $\leq$ 300us duty cycle $\leq$ 2%.
- Guaranteed by design, not subject to production testing.

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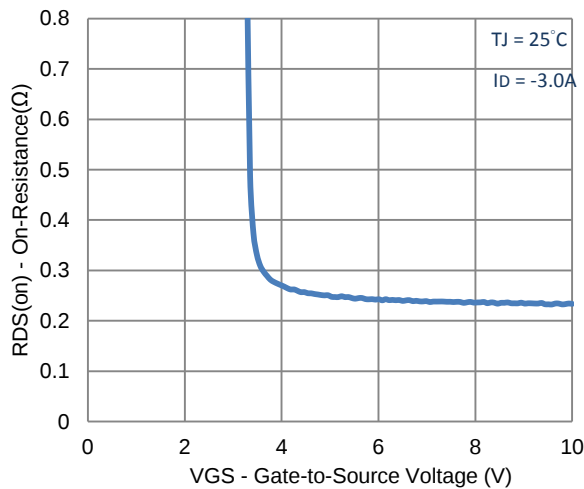
Typical Electrical Characteristics



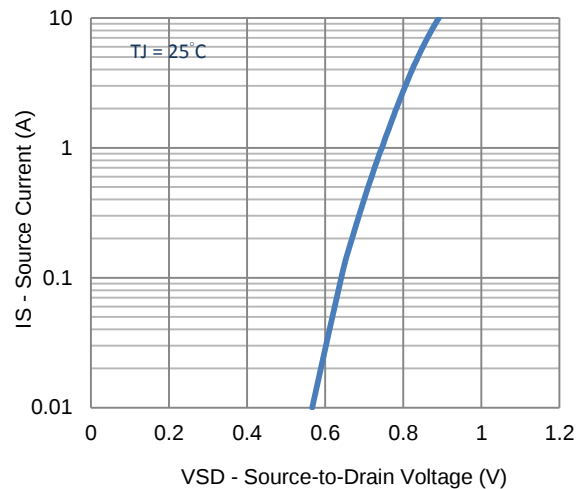
1. On-Resistance vs. Drain Current



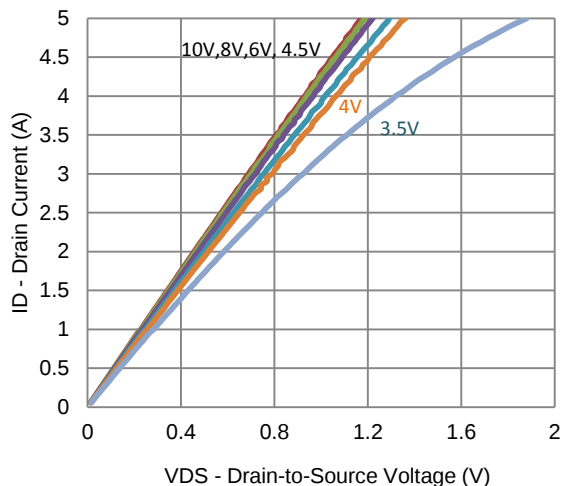
2. Transfer Characteristics



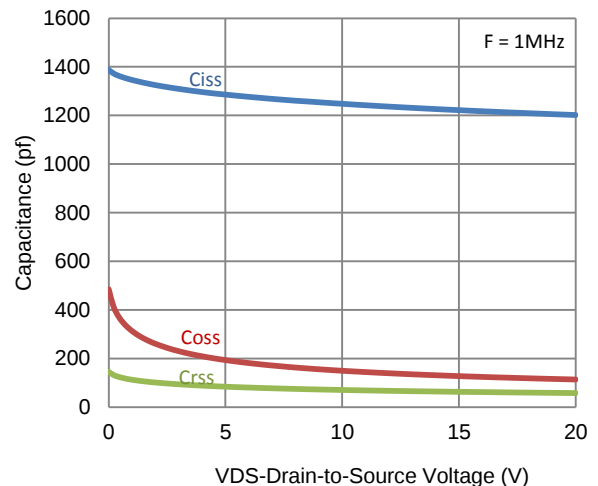
3. On-Resistance vs. Gate-to-Source Voltage



4. Drain-to-Source Forward Voltage

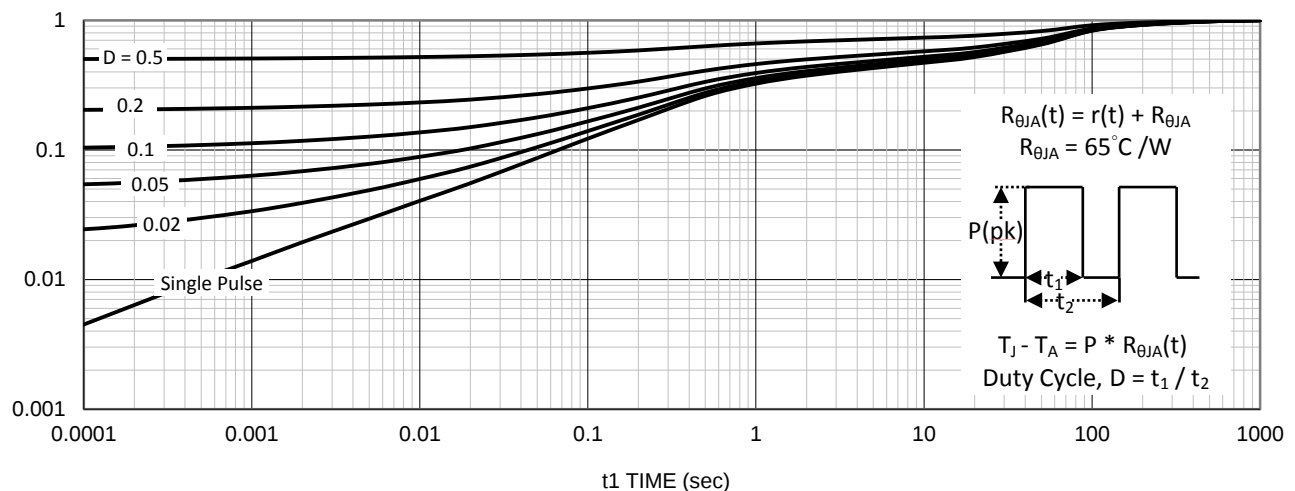
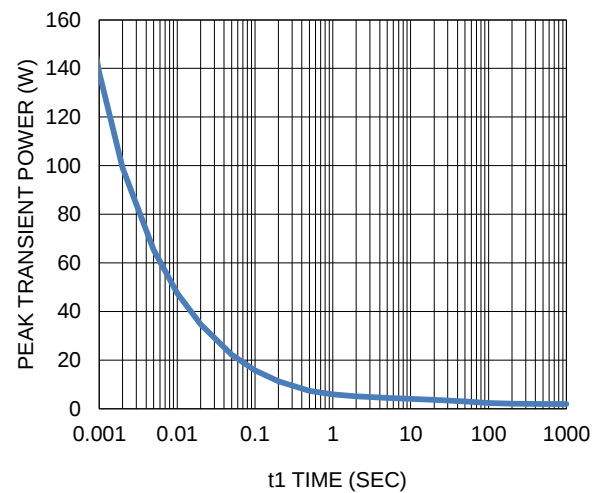
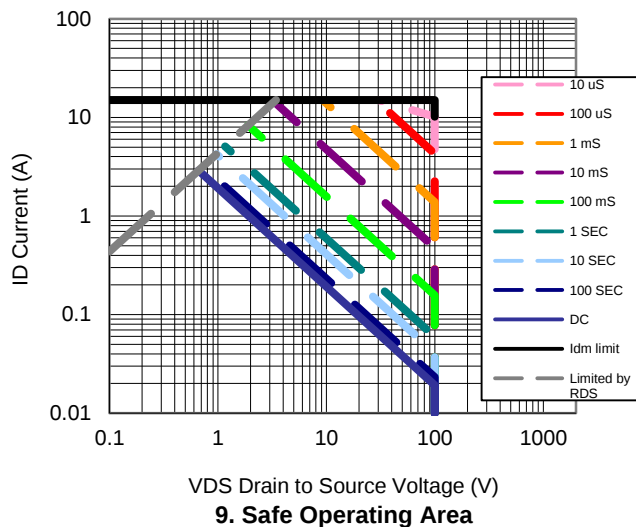
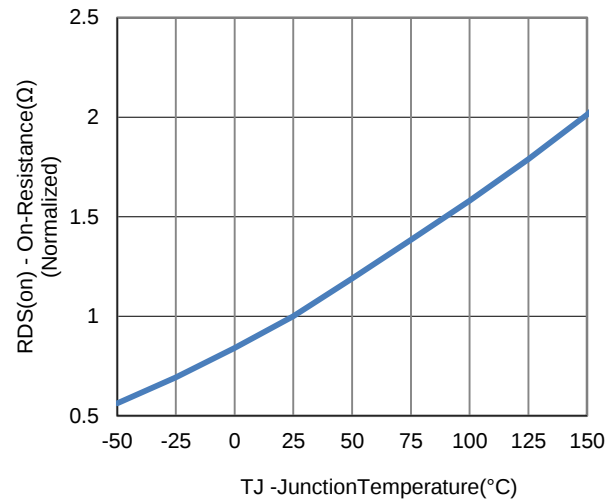
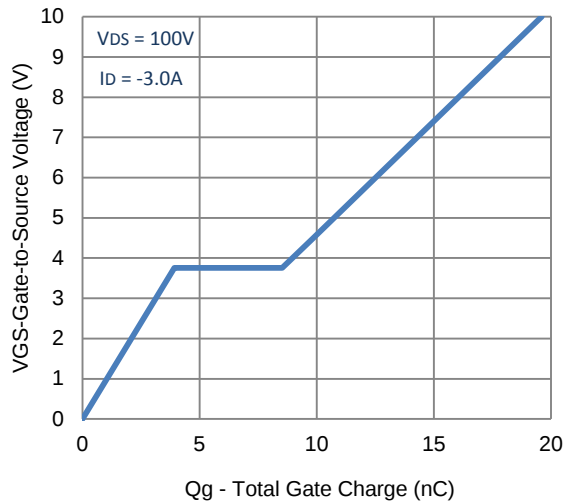


5. Output Characteristics

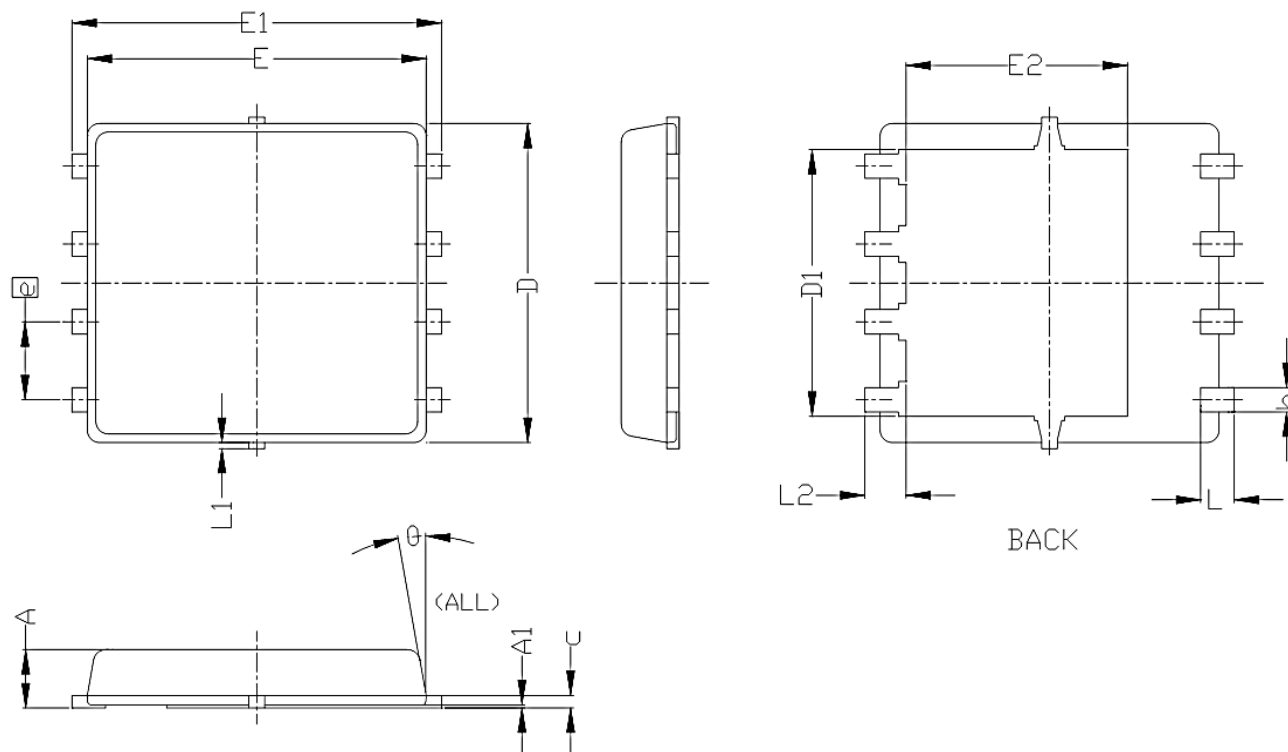


6. Capacitance

Typical Electrical Characteristics



Package Information



SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.85	0.95	1.00	0.033	0.037	0.039
A1	0.00	---	0.05	0.000	---	0.002
b	0.30	0.40	0.50	0.012	0.016	0.020
c	0.15	0.20	0.25	0.006	0.008	0.010
D	5.20 BSC			0.205 BSC		
D1	4.35 BSC			0.171 BSC		
E	5.55 BSC			0.219 BSC		
E1	6.05 BSC			0.238 BSC		
E2	3.62 BSC			0.143 BSC		
e	1.27 BSC			0.050 BSC		
L	0.45	0.55	0.65	0.018	0.022	0.026
L1	0	---	0.15	0	---	0.006
L2	0.68 REF			0.027 REF		
θ	0°	---	10°	0°	---	10°