

P-Channel 60-V (D-S) MOSFET

Key Features:

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

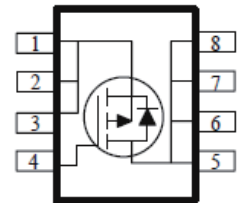
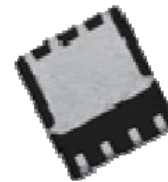
Typical Applications:

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



RoHS
COMPLIANT
HALOGEN
FREE

DFN3x3-8L



PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (m Ω)	I_D (A)
-60	38 @ $V_{GS} = -10V$	-7.9
	45 @ $V_{GS} = -4.5V$	-7.3

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

Parameter		Symbol	Limit	Units
Drain-Source Voltage		V_{DS}	-60	V
Gate-Source Voltage		V_{GS}	± 20	
Continuous Drain Current ^a	$T_A = 25^\circ\text{C}$	I_D	-7.9	A
	$T_A = 70^\circ\text{C}$		-6	
Pulsed Drain Current ^b		I_{DM}	-30	
Continuous Source Current (Diode Conduction) ^a		I_S	-4.6	A
Power Dissipation ^a	$T_A = 25^\circ\text{C}$	P_D	3.5	W
	$T_A = 70^\circ\text{C}$		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	$t \leq 10 \text{ sec}$	$R_{\theta JA}$	35	$^\circ\text{C/W}$
	Steady State		81	

Notes

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

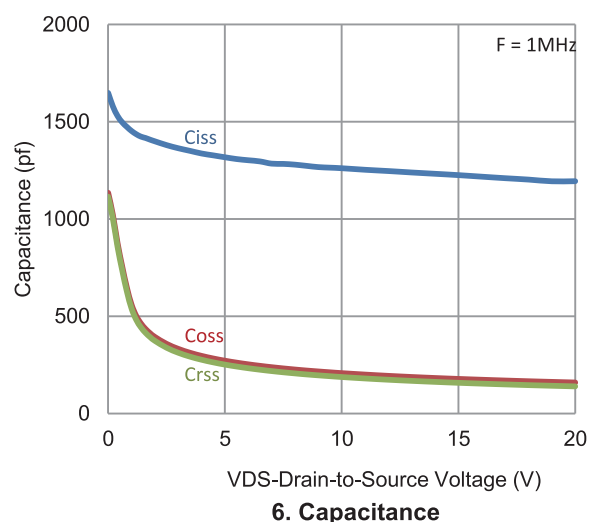
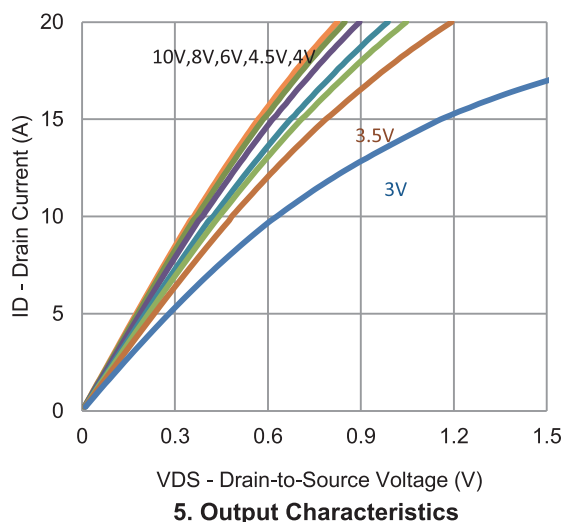
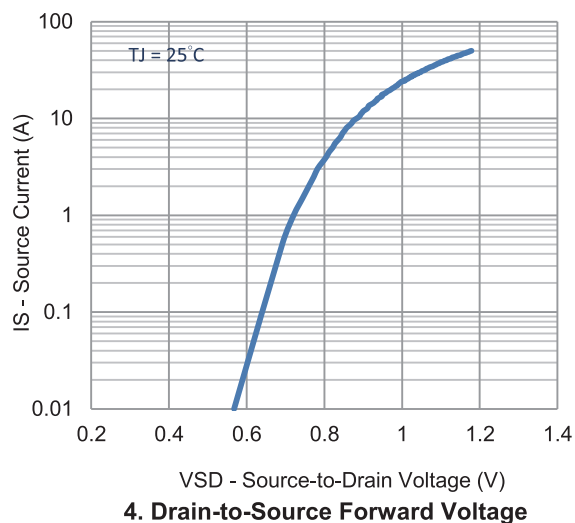
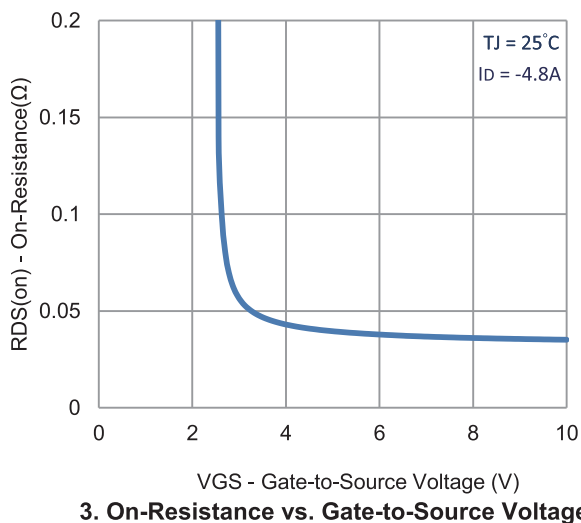
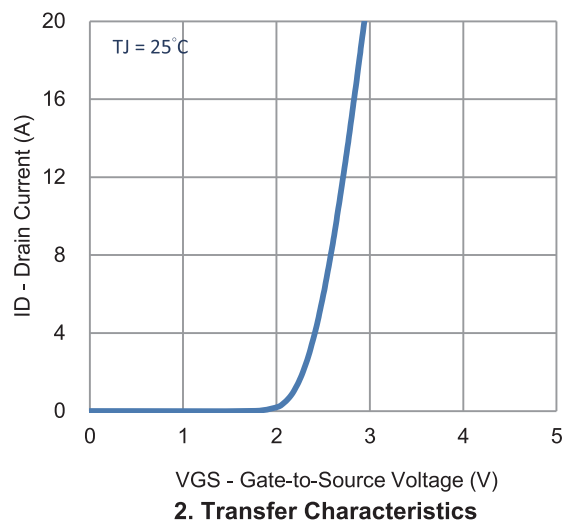
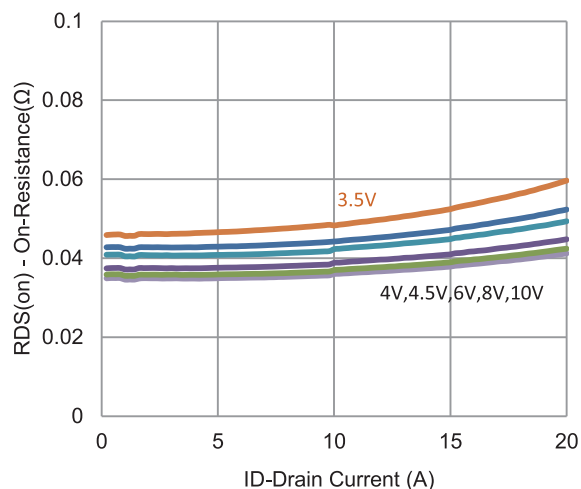
Electrical Characteristics

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}	$V_{DS} = 0 V, V_{GS} = \pm 20 V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -48 V, V_{GS} = 0 V$			-1	μA
		$V_{DS} = -48 V, V_{GS} = 0 V, T_J = 55^\circ C$			-25	
On-State Drain Current	$I_{D(on)}$	$V_{DS} = -5 V, V_{GS} = -10 V$	-10			A
Drain-Source On-Resistance	$r_{DS(on)}$	$V_{GS} = -10 V, I_D = -4.8 A$			38	m Ω
		$V_{GS} = -4.5 V, I_D = -3.9 A$			45	
Forward Transconductance	g_{fs}	$V_{DS} = -15 V, I_D = -4.8 A$		12		S
Diode Forward Voltage	V_{SD}	$I_S = -2.3 A, V_{GS} = 0 V$		-0.78		V
Dynamic						
Total Gate Charge	Q_g	$V_{DS} = -30 V, V_{GS} = -4.5 V,$ $I_D = -4.8 A$		28		nC
Gate-Source Charge	Q_{gs}			6.7		
Gate-Drain Charge	Q_{gd}			12		
Turn-On Delay Time	$t_{d(on)}$	$V_{DS} = -30 V, R_L = 6.3 \Omega,$ $I_D = -4.8 A,$ $V_{GEN} = -10 V, R_{GEN} = 6 \Omega$		10		ns
Rise Time	t_r			14		
Turn-Off Delay Time	$t_{d(off)}$			102		
Fall Time	t_f			39		
Input Capacitance	C_{iss}	$V_{DS} = -15 V, V_{GS} = 0 V, f = 1 MHz$		1226		pF
Output Capacitance	C_{oss}			182		
Reverse Transfer Capacitance	C_{rss}			158		

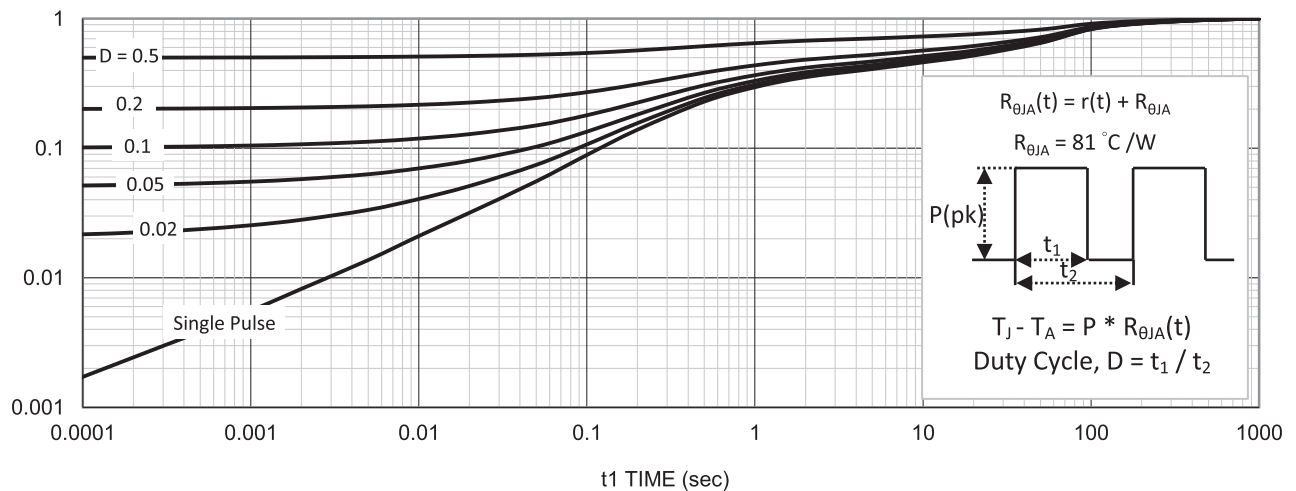
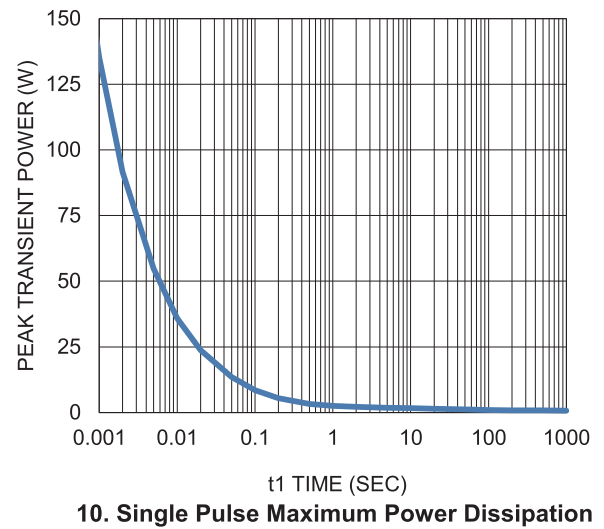
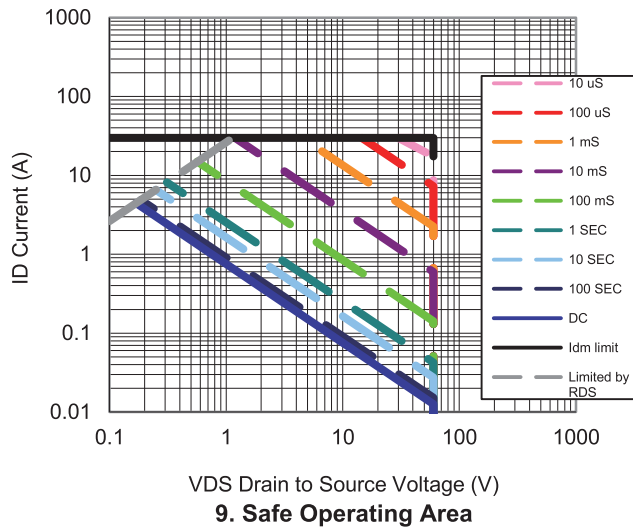
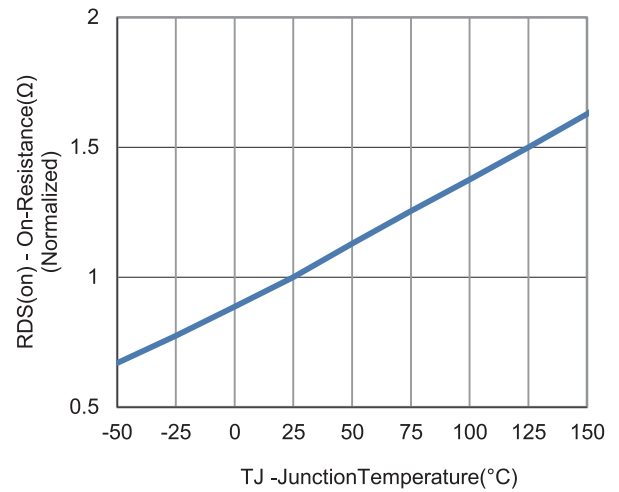
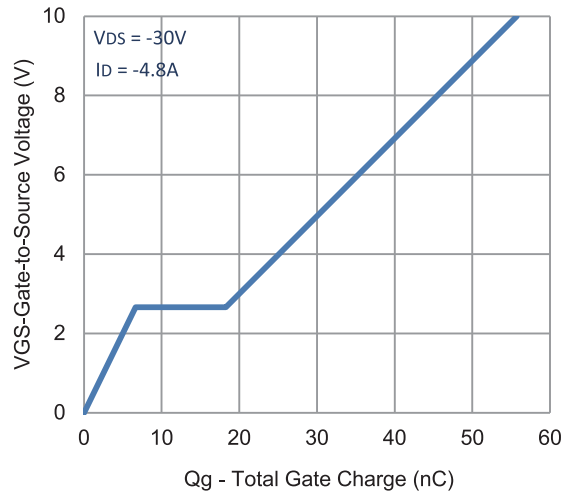
Notes

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

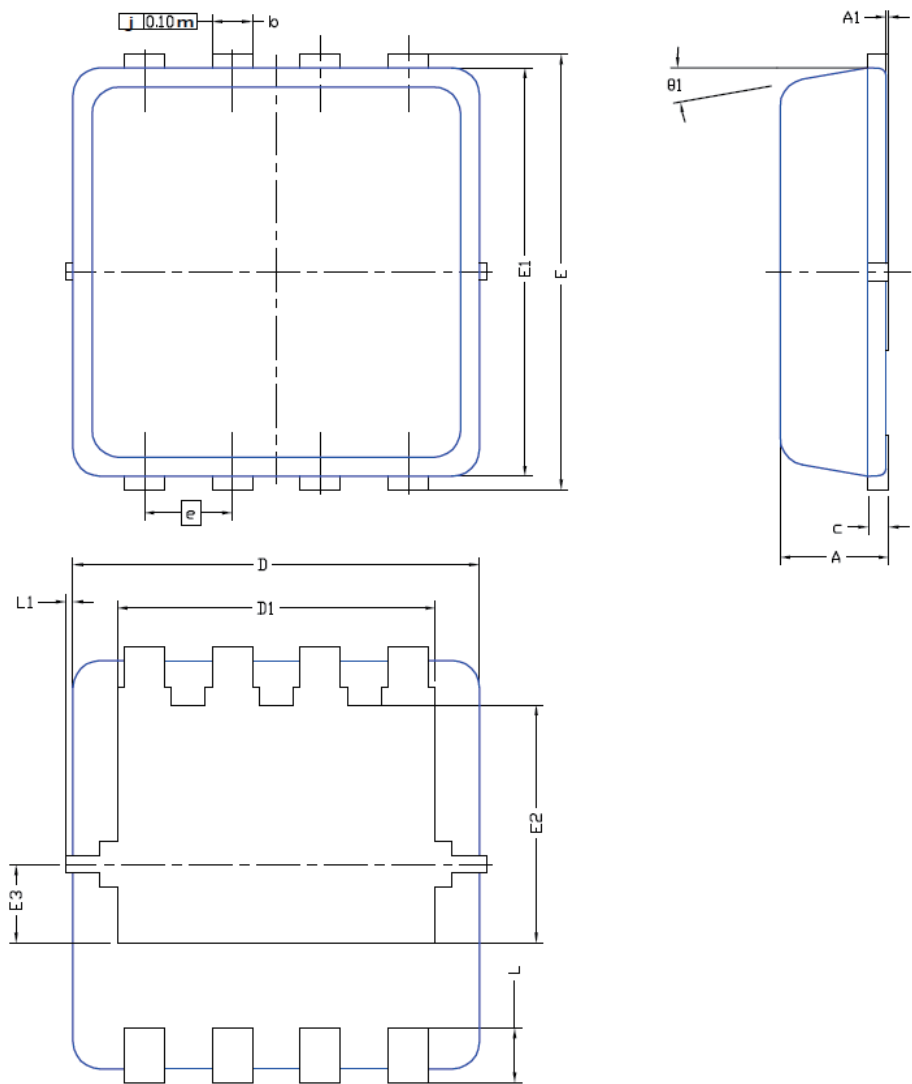
Typical Electrical Characteristics



Typical Electrical Characteristics



Package Information



DIM.	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0,700	0,80	0,900	0,0276	0,0315	0,0354
A1	0,00	---	0,05	0,000	---	0,002
b	0,24	0,30	0,35	0,009	0,012	0,014
c	0,10	0,152	0,25	0,004	0,006	0,010
D	3,00 BSC			0,118 BSC		
D1	2,35 BSC			0,093 BSC		
E	3,20 BSC			0,126 BSC		
E1	3,00 BSC			0,118 BSC		
E2	1,75 BSC			0,069 BSC		
E3	0,575 BSC			0,023 BSC		
e	0,65 BSC			0,026 BSC		
L	0,30	0,40	0,50	0,0118	0,0157	0,0197
L1	0	---	0,100	0	---	0,004
θ1	0°	10°	12°	0°	10°	12°