

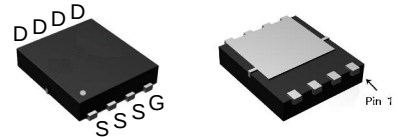
Features

- 100V/4A
 - $R_{DS(ON)} = 54m\Omega (typ.) @ V_{GS} = 10V$
 - $R_{DS(ON)} = 58m\Omega (typ.) @ V_{GS} = 4.5V$
- 100% UIS + R_g Tested
- Reliable and Rugged
- Lead Free and Green Devices Available (RoHS Compliant)
- Moisture Sensitivity Level MSL1 (per JEDEC J-STD-020D)

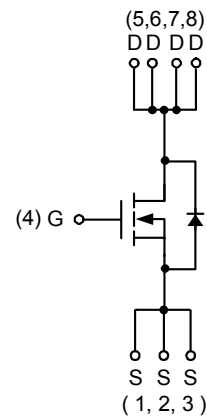
Applications

- Motor Control.
- Fan Pre-driver H-bridge.

Pin Description



DFN3.3x3.3_8L_EP1_P



N-Channel MOSFET

Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ Unless Otherwise Noted)

Symbol	Parameter		Rating	Unit
Common Ratings				
V _{DSS}	Drain-Source Voltage		100	V
V _{GSS}	Gate-Source Voltage		±20	
T _J	Maximum Junction Temperature		150	°C
T _{STG}	Storage Temperature Range		-55 to 150	
I _S	Diode Continuous Forward Current	T _A =25°C	4	A
I _D	Continuous Drain Current	T _A =25°C	4	A
		T _A =70°C	1.6	
I _{DM} ^a	Pulsed Drain Current	T _A =25°C	12	
P _D	Maximum Power Dissipation	T _A =25°C	1.79	W
		T _A =70°C	1.14	
R _{θJA} ^c	Thermal Resistance-Junction to Ambient	Steady state	70	°C/W
I _{AS} ^b	Avalanche Current, Single pulse	L=0.5mH	6	A
E _{AS} ^b	Avalanche Energy, Single pulse	L=0.5mH	9	mJ

Note a : Pulse width limited by max. junction temperature.

Note b : UIS tested and pulse width limited by maximum junction temperature (initial temperature $T_J=25^{\circ}\text{C}$).

Note c : Surface mounted on 1in² pad area.

Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

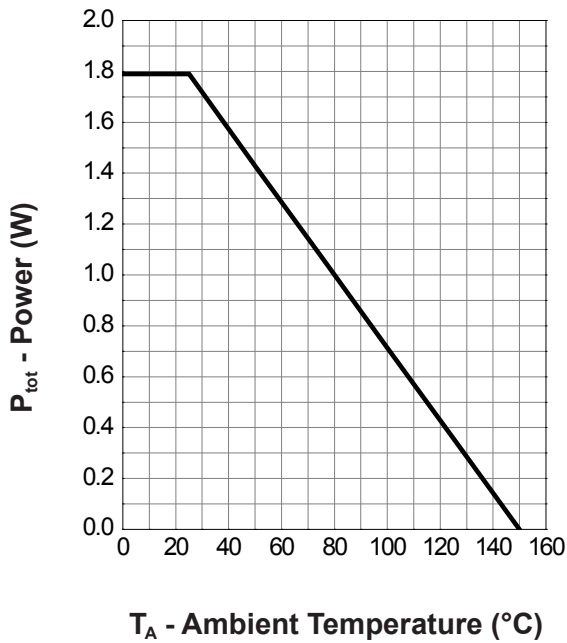
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	100	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =80V, V _{GS} =0V	-	-	1	μA
		T _J =85°C	-	-	30	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	1	2	3	V
I _{GSS}	Gate Leakage Current	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
R _{DS(ON)} ^d	Drain-Source On-state Resistance	V _{GS} =10V, I _{DS} =3A	-	54	69	mΩ
		V _{GS} =4.5V, I _{DS} =1.8A	-	58	89	
Diode Characteristics						
V _{SD} ^d	Diode Forward Voltage	I _{SD} =1.5A, V _{GS} =0V	-	0.8	1.3	V
t _{rr} ^e	Reverse Recovery Time	I _{SD} =3A, dI _{SD} /dt=100A/μs	-	25	-	ns
Q _{rr} ^e	Reverse Recovery Charge		-	29	-	nC
Dynamic Characteristics ^e						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz	-	2	-	Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =50V, Frequency=1.0MHz	-	300	390	pF
C _{oss}	Output Capacitance		-	58	-	
C _{rss}	Reverse Transfer Capacitance		-	15	-	
t _{d(ON)}	Turn-on Delay Time	V _{DD} =30V, R _L =30Ω, I _{DS} =1A, V _{GEN} =10V, R _G =6Ω	-	9	17	ns
t _r	Turn-on Rise Time		-	8	15	
t _{d(OFF)}	Turn-off Delay Time		-	16	29	
t _f	Turn-off Fall Time		-	9	17	
Gate Charge Characteristics ^e						
Q _g	Total Gate Charge	V _{DS} =50V, V _{GS} =10V, I _{DS} =3A	-	5.7	6.6	nC
Q _g	Total Gate Charge	V _{DS} =50V, V _{GS} =4.5V, I _{DS} =3A	-	3	-	
Q _{gs}	Gate-Source Charge		-	0.9	-	
Q _{gd}	Gate-Drain Charge		-	1.5	-	

Note d : Pulse test ; pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

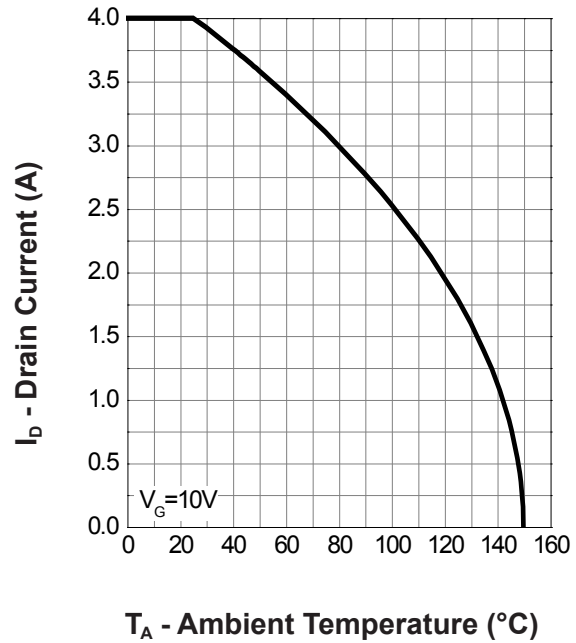
Note e : Guaranteed by design, not subject to production testing.

Typical Operating Characteristics

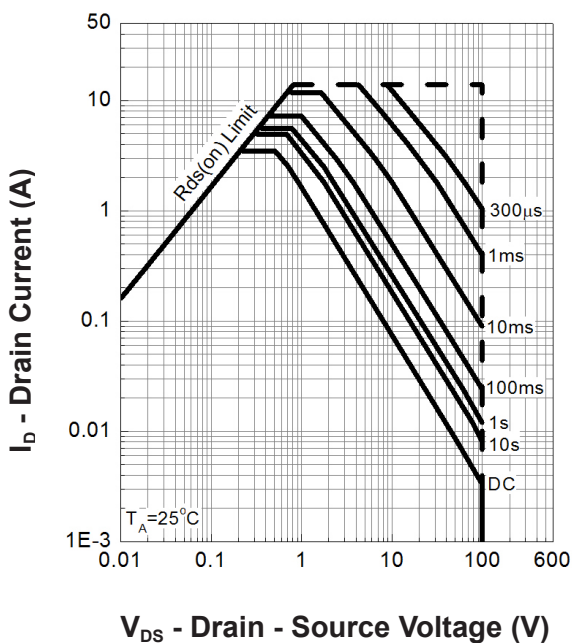
Power Dissipation



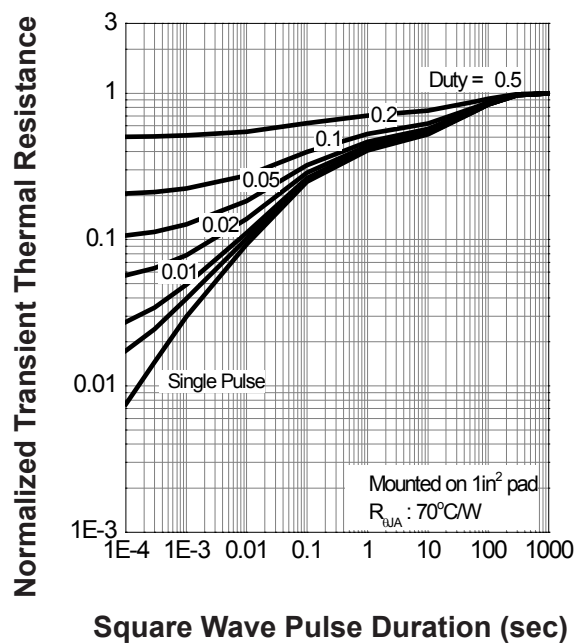
Drain Current



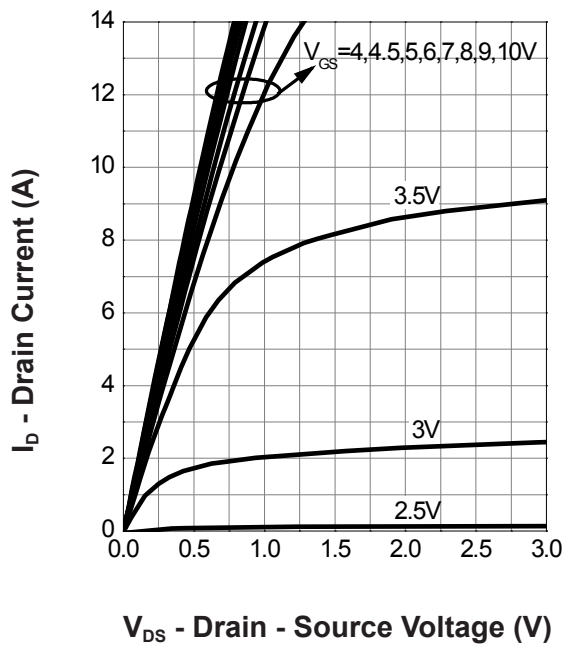
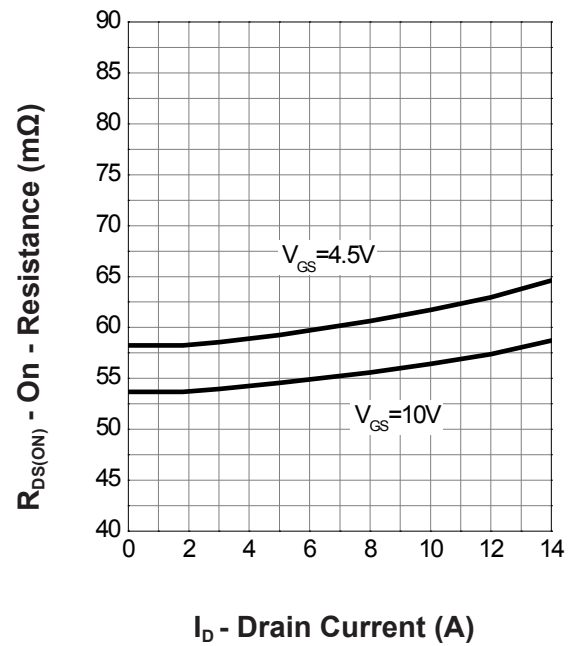
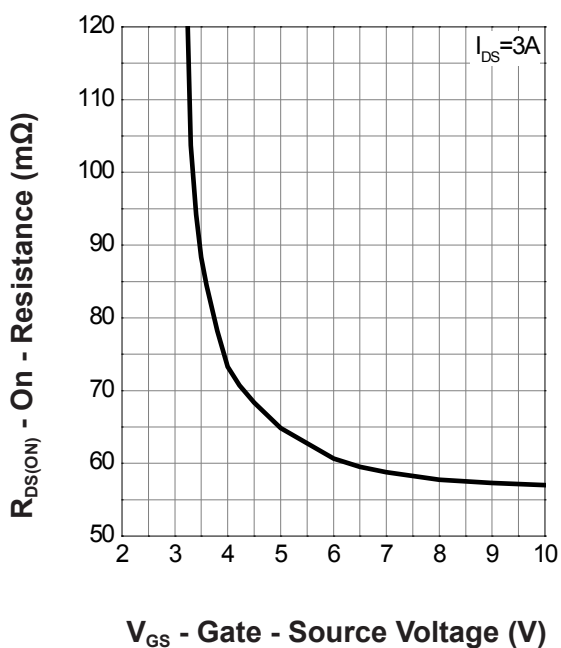
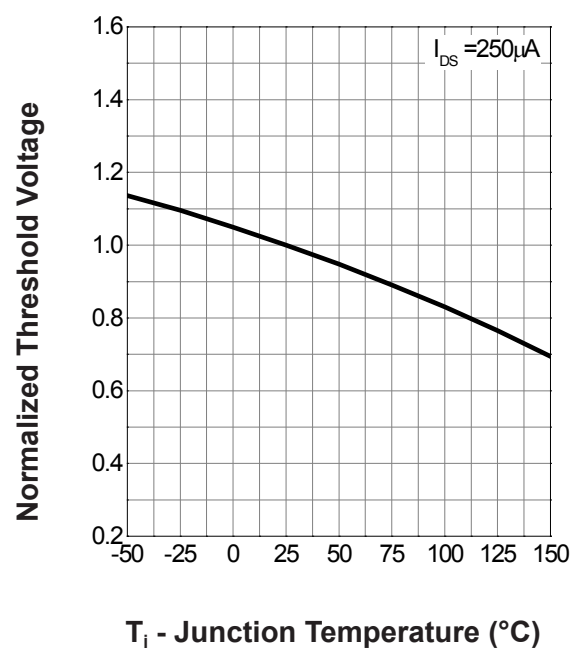
Safe Operation Area



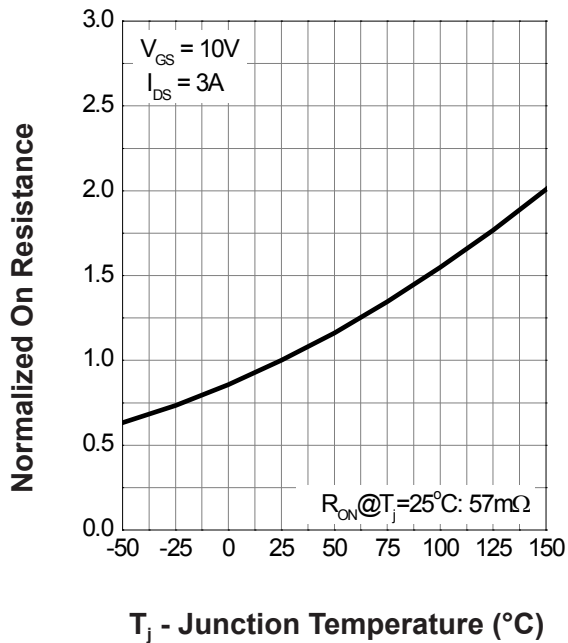
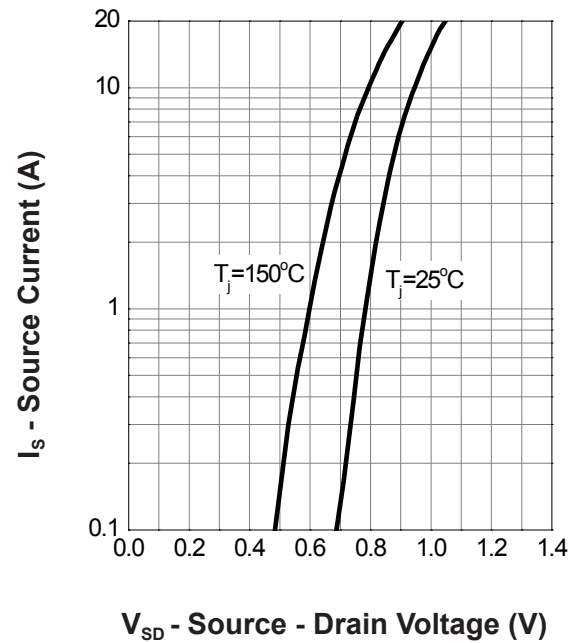
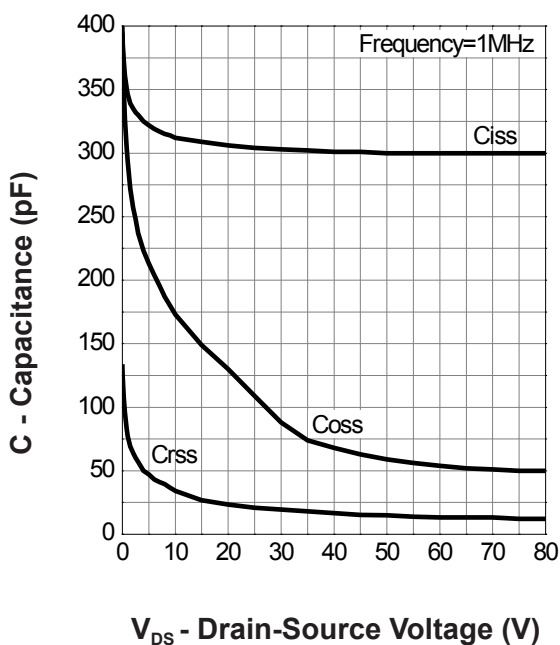
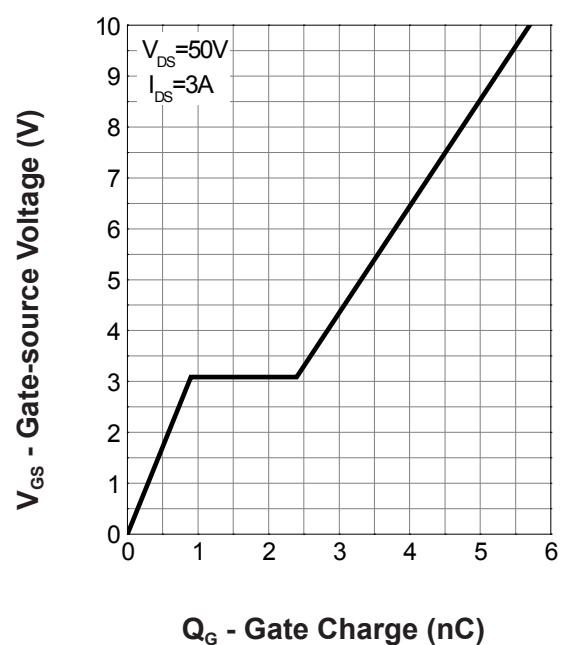
Thermal Transient Impedance



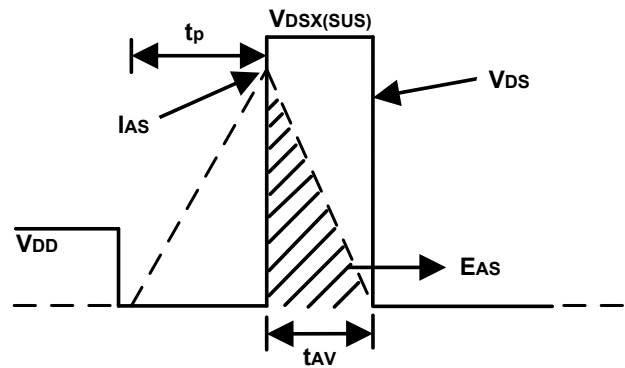
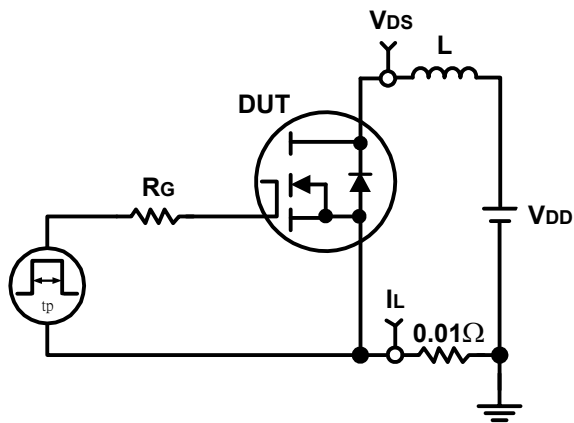
Typical Operating Characteristics(Cont.)

Output Characteristics

Drain-Source On Resistance

Gate-Source On Resistance

Gate Threshold Voltage


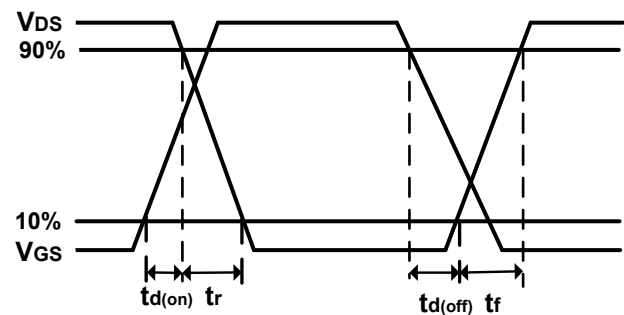
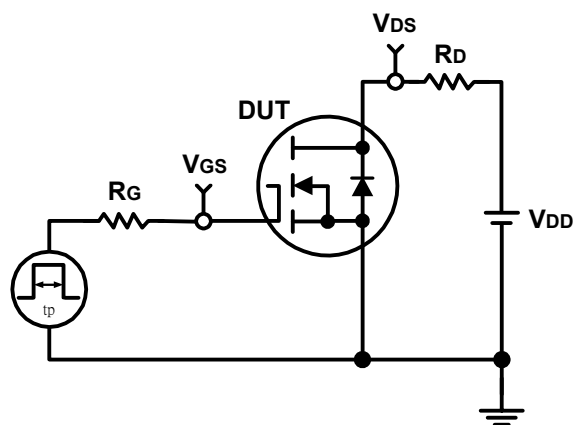
Typical Operating Characteristics(Cont.)

Drain-Source On Resistance

Source-Drain Diode Forward

Capacitance

Gate Charge


Avalanche Test Circuit and Waveforms

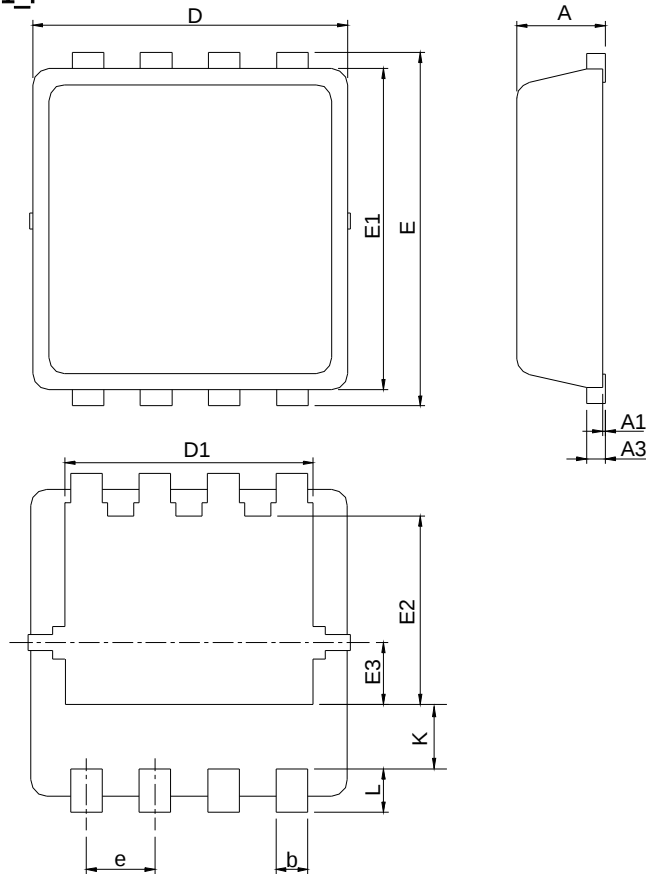


Switching Time Test Circuit and Waveforms



Package Information

DFN3x3.3_8L_EP1_P



SYMBOL	DFN3x3-8			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	0.80	1.00	0.031	0.039
A1	0.00	0.05	0.000	0.002
A3	0.10	0.25	0.004	0.010
b	0.24	0.35	0.009	0.014
D	2.90	3.10	0.114	0.122
D1	2.25	2.45	0.089	0.096
E	3.10	3.30	0.122	0.130
E1	2.90	3.10	0.114	0.122
E2	1.65	1.85	0.065	0.073
E3	0.56	0.58	0.022	0.023
e	0.65 BSC		0.026 BSC	
K	0.475	0.775	0.019	0.031
L	0.30	0.50	0.012	0.020

RECOMMENDED LAND PATTERN

