

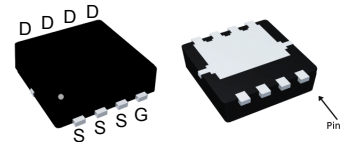
Features

- -20V/-55A,
 $R_{DS(ON)} = 7.5m\Omega(\text{typ.}) @ V_{GS} = -4.5V$
 $R_{DS(ON)} = 10.5m\Omega(\text{typ.}) @ V_{GS} = -2.5V$
- Reliable and Rugged
- Lead Free and Green Devices Available (RoHS Compliant)

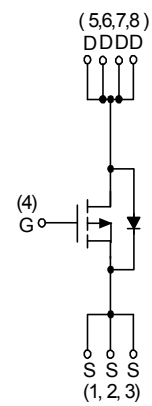
Applications

- Portable Equipment and Battery Powered Systems.

Pin Description



DFN3.3x3.3A-8_EP



P-Channel MOSFET

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

Symbol	Parameter		Rating	Unit
V_{DSS}	Drain-Source Voltage		-20	V
V_{GSS}	Gate-Source Voltage		± 12	
I_{DM}^a	Pulsed Drain Current ($V_{GS} = -4.5\text{V}$)		-165	A
I_D^c	Continuous Drain Current	$T_C = 25^\circ\text{C}$	-55	
		$T_C = 100^\circ\text{C}$	-42	
I_S^a	Diode Continuous Forward Current		-55	
I_{AS}^d	Avalanche Current, Single pulse	$L = 0.5\text{mH}$	-20	A
E_{AS}^d	Avalanche Energy, Single pulse	$L = 0.5\text{mH}$	100	mJ
T_{STG}	Storage Temperature Range		-55 to 150	$^\circ\text{C}$
$R_{\theta JA}^{a,b}$	Thermal Resistance-Junction to Ambient	$t \leq 10\text{s}$	40	$^\circ\text{C/W}$
		Steady State	80	
$R_{\theta JC}^c$	Thermal Resistance-Junction to Case		4	$^\circ\text{C/W}$

Electrical Characteristics (T_A = 25°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	-20	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-16V, V _{GS} =0V T _J =85°C	-	-	-1 -30	μA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =-250μA	-0.5	-	-1	V
I _{GSS}	Gate Leakage Current	V _{GS} =±12V, V _{DS} =0V	-	-	±100	nA
R _{DS(ON)} ^e	Drain-Source On-state Resistance	V _{GS} =-4.5V, I _{DS} =-11A V _{GS} =-2.5V, I _{DS} =-6A	-	7.5 10.5	10 14	mΩ
Diode Characteristics						
V _{SD} ^e	Diode Forward Voltage	I _{SD} =-1A, V _{GS} =0V	-	-0.7	-1	V
t _{rr} ^f	Reverse Recovery Time	I _{SD} =-11A, dI _{SD} /dt=100A/μs	-	63	-	ns
Q _{rr} ^f	Reverse Recovery Charge		-	54	-	nC
Dynamic Characteristics ^f						
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =-10V, Frequency=1.0MHz	-	2620	-	pF
C _{oss}	Output Capacitance		-	320	-	
C _{rss}	Reverse Transfer Capacitance		-	290	-	
t _{d(ON)}	Turn-on Delay Time	V _{DD} =-10V, R _L =10Ω, I _{DS} =-1A, V _{GEN} =-4.5V, R _G =6Ω	-	9	-	ns
t _r	Turn-on Rise Time		-	13	-	
t _{d(OFF)}	Turn-off Delay Time		-	26	-	
t _f	Turn-off Fall Time		-	167	-	
Gate Charge Characteristics ^f						
Q _g	Total Gate Charge	V _{DS} =-10V, V _{GS} =-4.5V, I _{DS} =-11A	-	25	-	nC
Q _{gs}	Gate-Source Charge		-	1.6	-	
Q _{gd}	Gate-Drain Charge		-	11	-	

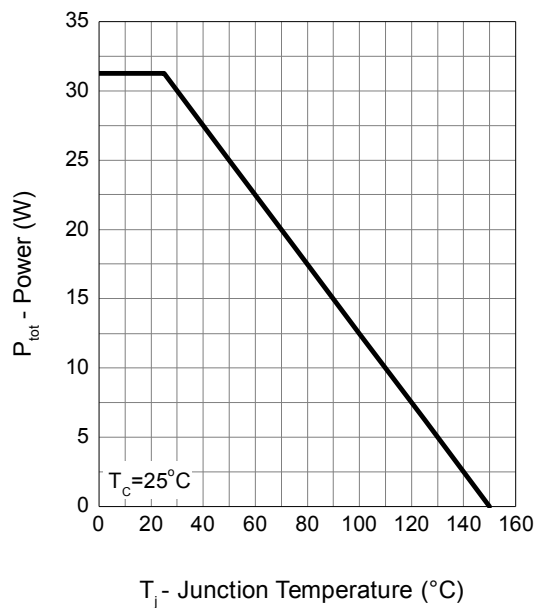
Note e Pulse test; pulse width≤300μs, duty cycle≤2%.

Note f Guaranteed by design, not subject to production testing.

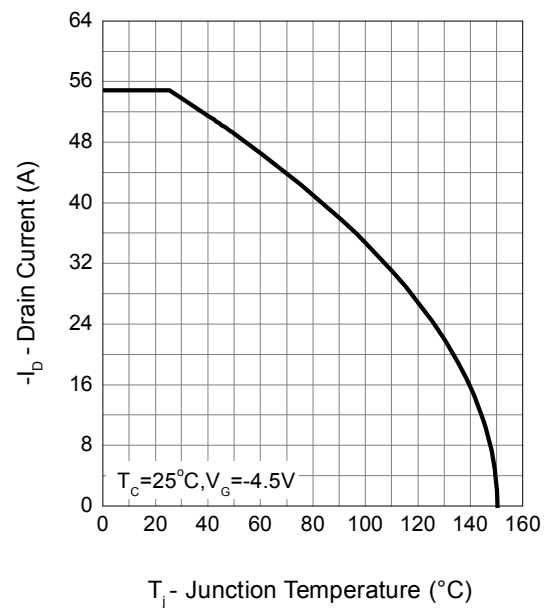
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Typical Operating Characteristics

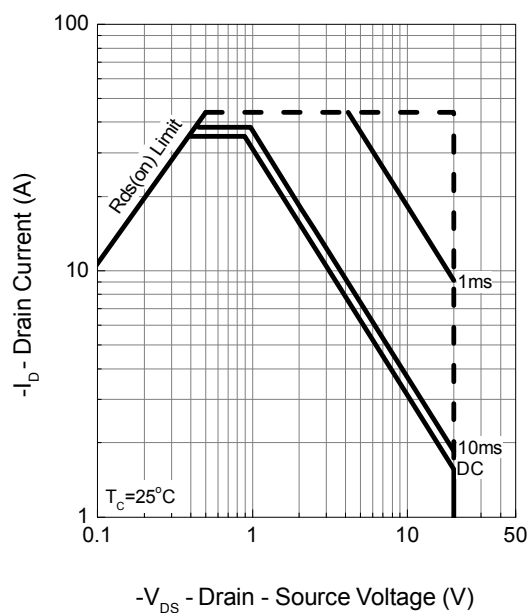
Power Dissipation



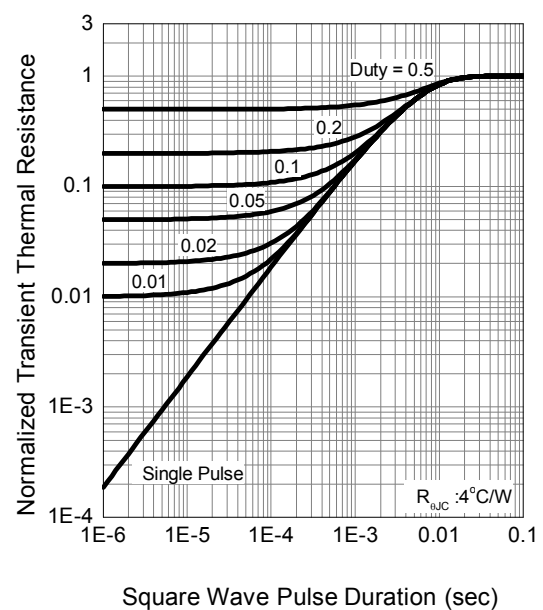
Drain Current



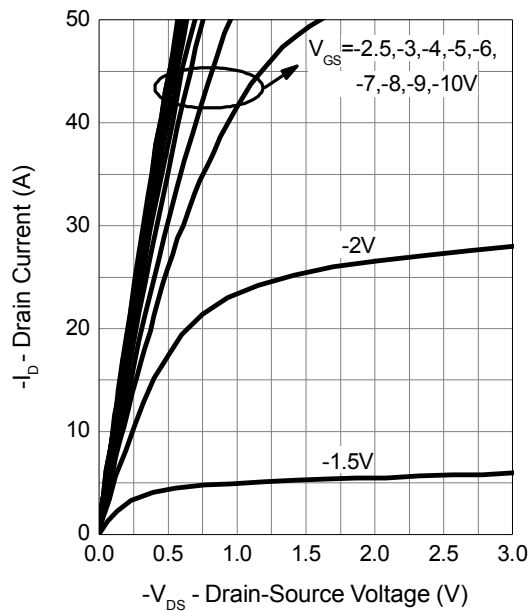
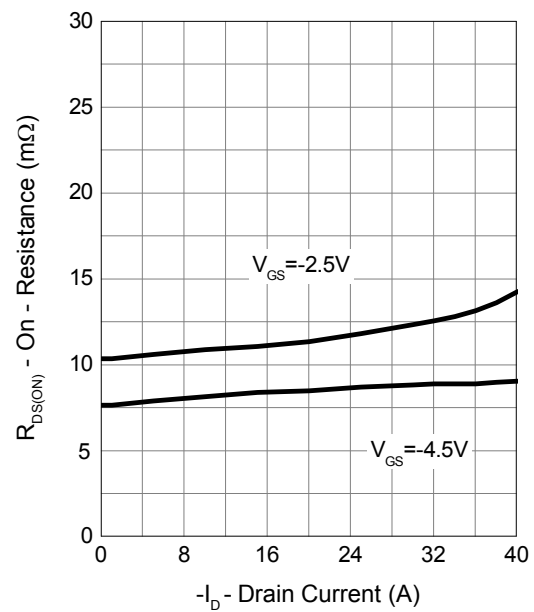
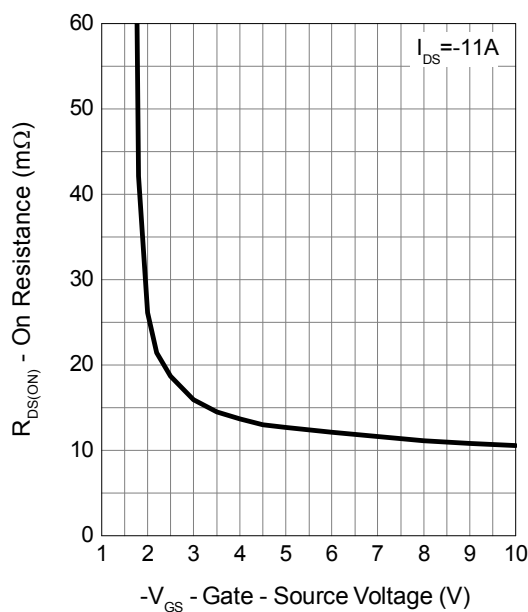
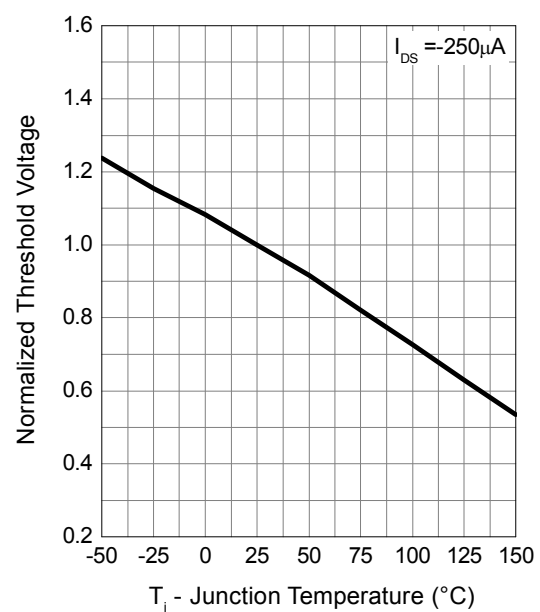
Safe Operation Area



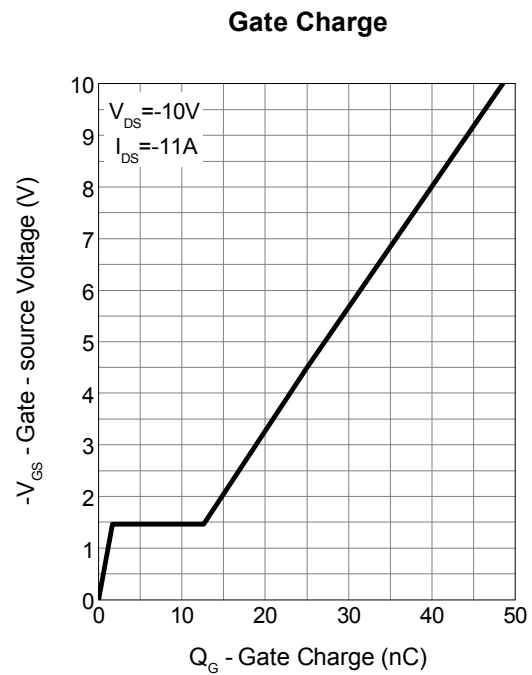
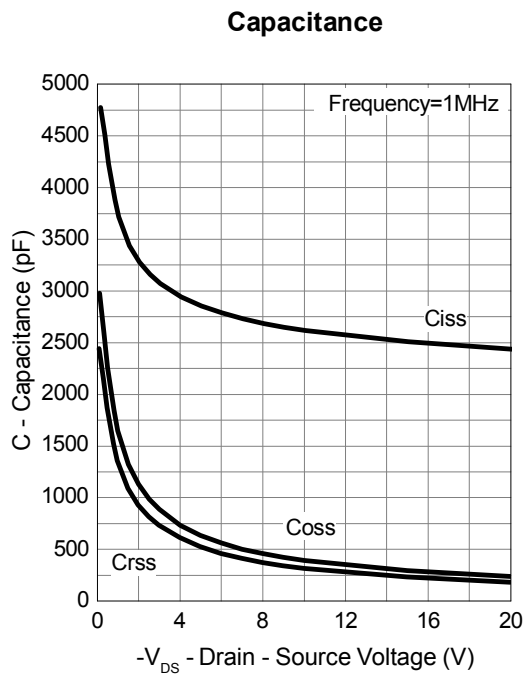
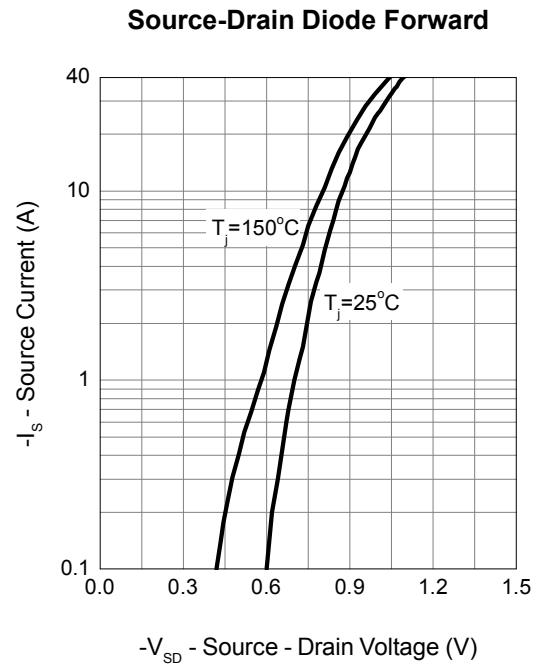
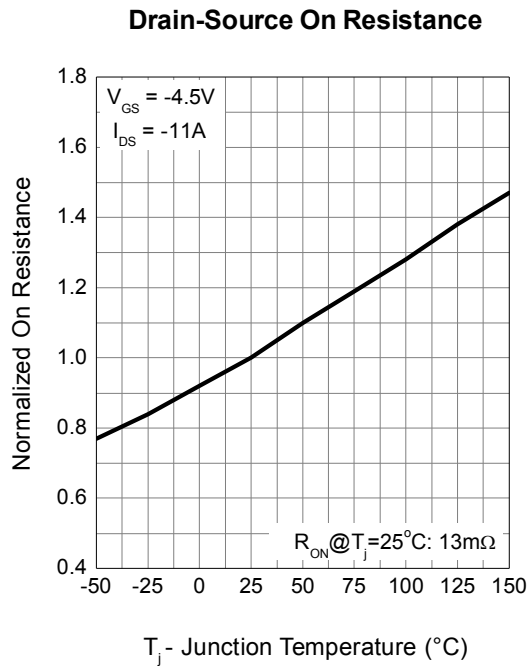
Thermal Transient Impedance



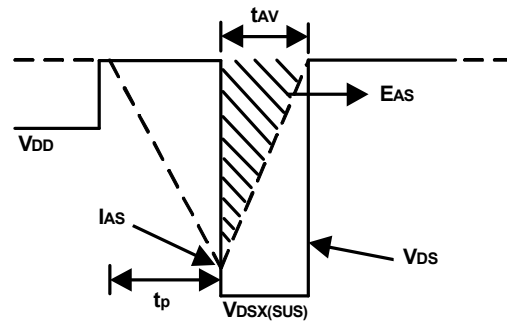
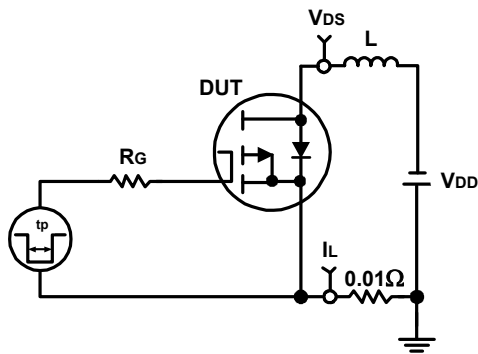
Typical Operating Characteristics (Cont.)

Output Characteristics

Drain-Source On Resistance

Gate-Source On Resistance

Gate Threshold Voltage


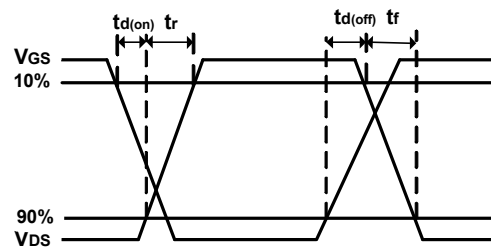
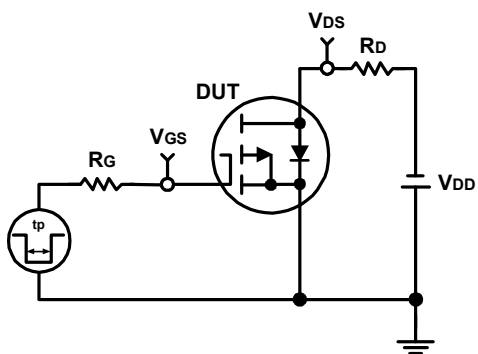
Typical Operating Characteristics (Cont.)



Avalanche Test Circuit and Waveforms

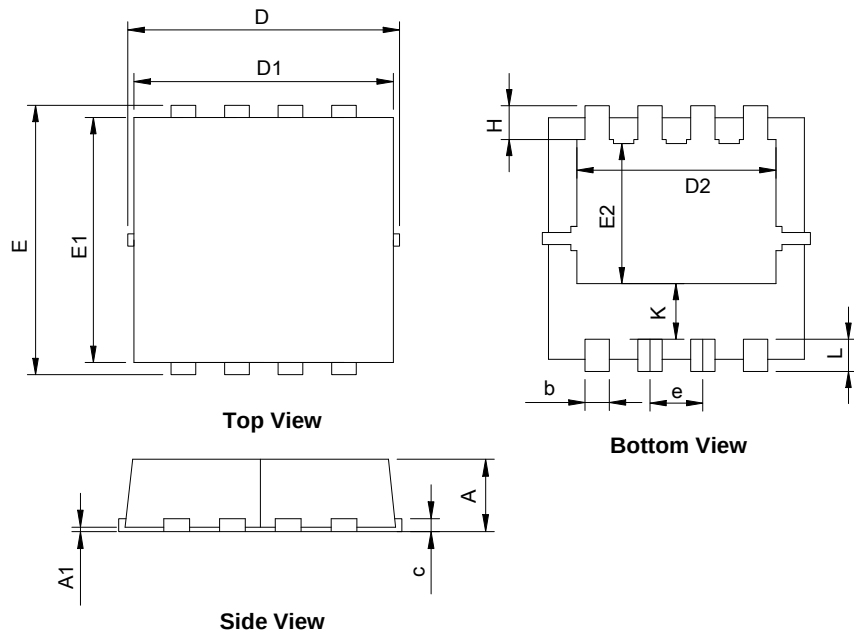


Switching Time Test Circuit and Waveforms



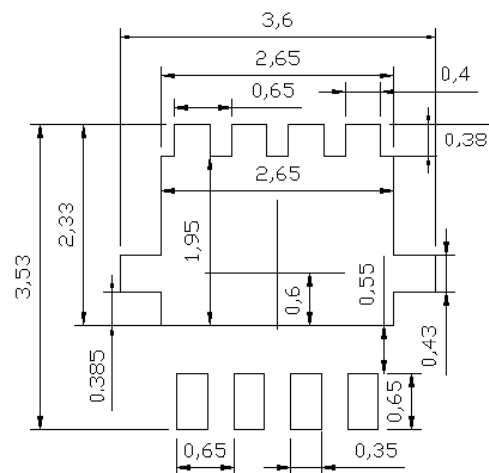
Package Information

DFN3.3x3.3A-8_EP1_P



SYMBOL	DFN3.3x3.3A-8_EP1_P				
	MILLIMETERS		INCHES		
	MIN.	MAX.	MIN.	MAX.	
	A	0.70	1.00	0.028	0.039
	A1	0.00	0.05	0.000	0.002
	b	0.25	0.35	0.010	0.014
	c	0.10	0.25	0.004	0.010
	D	3.10	3.50	0.122	0.138
	D1	3.05	3.25	0.120	0.128
	D2	2.35	2.59	0.093	0.102
E	3.10	3.50	0.122	0.138	
E1	2.90	3.10	0.114	0.122	
E2	1.64	1.98	0.065	0.078	
e	0.65 BSC		0.026 BSC		
H	0.32	0.52	0.013	0.020	
K	0.59	0.79	0.023	0.031	
L	0.25	0.55	0.010	0.022	

RECOMMENDED LAND PATTERN



UNIT: mm