

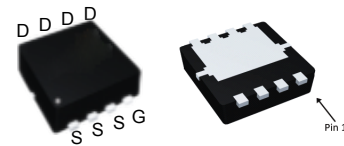
Features

- 60V/23A,
 $R_{DS(ON)} = 25m\Omega$ (typ.) @ $V_{GS} = 10V$
 $R_{DS(ON)} = 30m\Omega$ (typ.) @ $V_{GS} = 4.5V$
- Reliable and Rugged
- 100% UIS + R_g Tested
- Lead Free and Green Devices Available
 (RoHS Compliant)

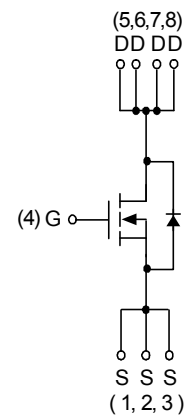
Applications

- DC-DC Converter.
- Motor Control
- Power Tools.
- Load Switching.

Pin Description



DFN3.3x3.3A-8_EP



N-Channel MOSFET

Absolute Maximum Ratings (T_A = 25°C Unless Otherwise Noted)

Symbol	Parameter		Rating	Unit
Common Ratings				
V _{DSS}	Drain-Source Voltage		60	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 _C =25°C	23	A
I _D	Continuous Drain Current	T _C =25°C	23	A
		T _C =100°C	17.3	
I _{DM} ^a	Pulsed Drain Current	T _C =25°C	69	
P _D	Maximum Power Dissipation	T _C =25°C	27.7	W
		T _C =100°C	11.1	
R _{θJC}	Thermal Resistance-Junction to Case		4.5	°C/W
R _{θJA} ^c	Thermal Resistance-Junction to Ambient	Steady State	80	°C/W
I _{AS} ^b	Avalanche Current, Single pulse	L=0.5mH	13	A
E _{AS} ^b	Avalanche Energy, Single pulse	L=0.5mH	42	mJ

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

Note b : UIS tested and pulse width limited by maximum junction temperature 150°C (initial temperature T_J=25°C).

Note c : Surface Mounted on 1in² pad area.

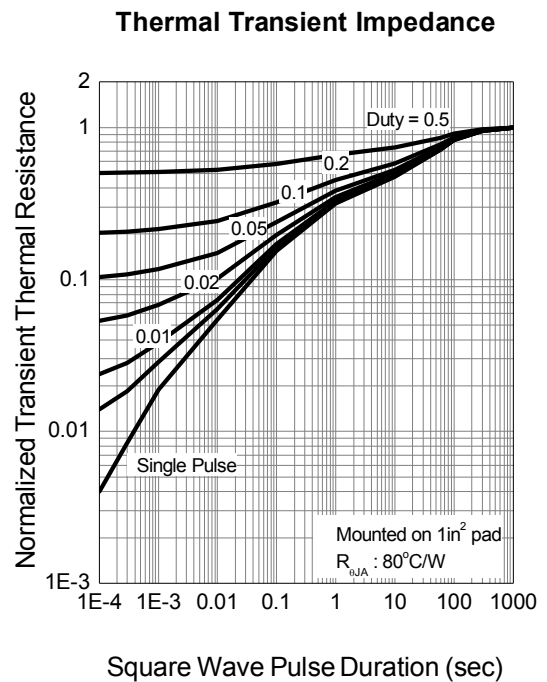
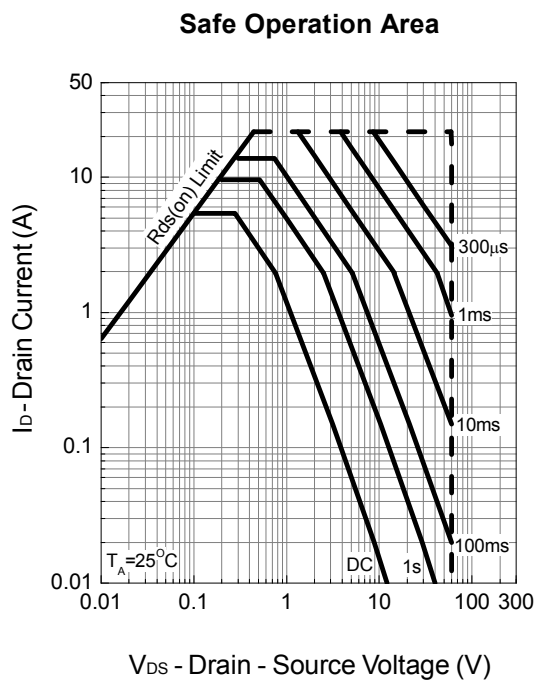
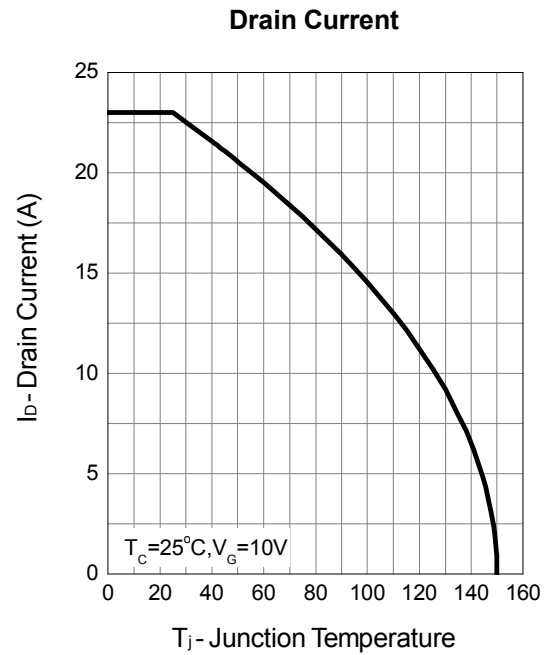
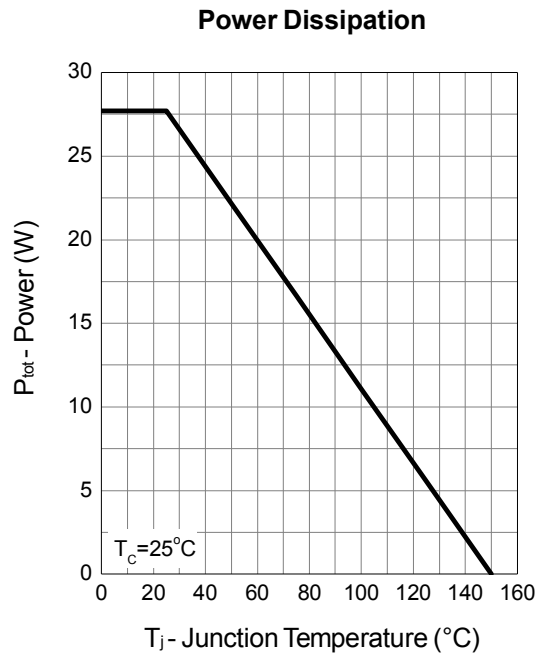
Electrical Characteristics (T_A = 25°C unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	60	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =48V, V _{GS} =0V T _J =85°C	-	-	1 30	μA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	0.7	1.3	1.9	V
I _{GSS}	Gate Leakage Current	V _{GS} =±16V, V _{DS} =0V	-	-	±100	nA
R _{DS(ON)} ^d	Drain-Source On-state Resistance	V _{GS} =10V, I _{DS} =15A	-	25	28	mΩ
		V _{GS} =4.5V, I _{DS} =10A	-	30	33	mΩ
Diode Characteristics						
V _{SD} ^d	Diode Forward Voltage	I _{SD} =8A, V _{GS} =0V	-	0.8	1.3	V
t _{rr}	Reverse Recovery Time	I _{SD} =10A, dI _{SD} /dt=100A/μs	-	24	-	ns
Q _{rr}	Reverse Recovery Charge		-	28	-	nC
Dynamic Characteristics ^e						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, f=1MHz	-	1	-	Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =30V, Frequency=1.0MHz	-	1180	1535	pF
C _{oss}	Output Capacitance		-	98	-	
C _{rss}	Reverse Transfer Capacitance		-	48	-	
t _{d(ON)}	Turn-on Delay Time	V _{DD} =30V, R _L =30Ω, I _{DS} =1A, V _{GEN} =10V, R _G =6Ω	-	12	22	ns
t _r	Turn-on Rise Time		-	6	11	
t _{d(OFF)}	Turn-off Delay Time		-	33	60	
t _f	Turn-off Fall Time		-	9	16	
Gate Charge Characteristics ^e						
Q _g	Total Gate Charge	V _{DS} =30V, V _{GS} =4.5V, I _{DS} =10A	-	11	-	nC
Q _g	Total Gate Charge	V _{DS} =30V, V _{GS} =10V, I _{DS} =10A	-	24	33.5	
Q _{gs}	Gate-Source Charge		-	2.5	-	
Q _{gd}	Gate-Drain Charge		-	4	-	

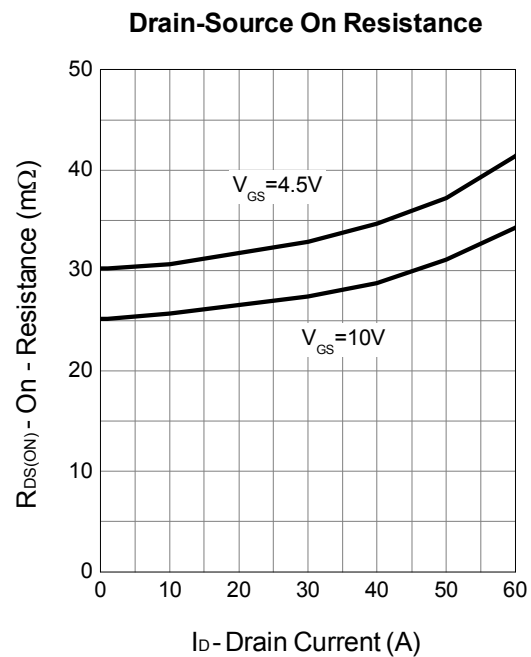
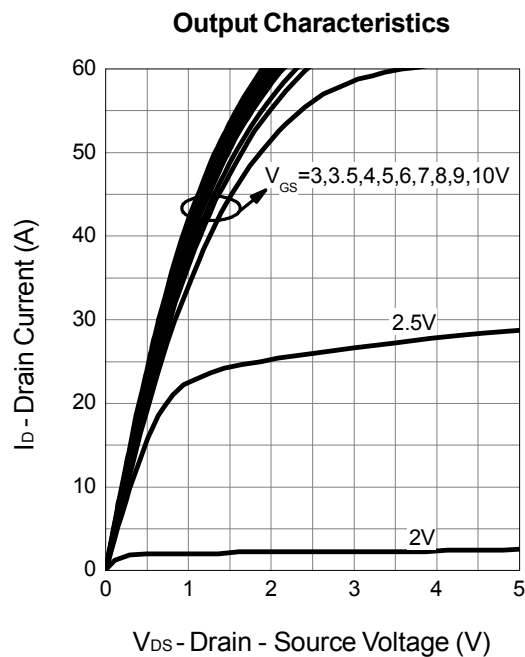
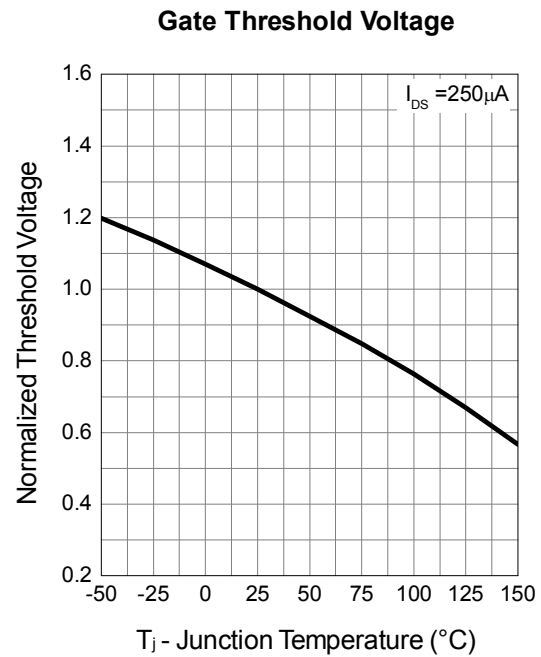
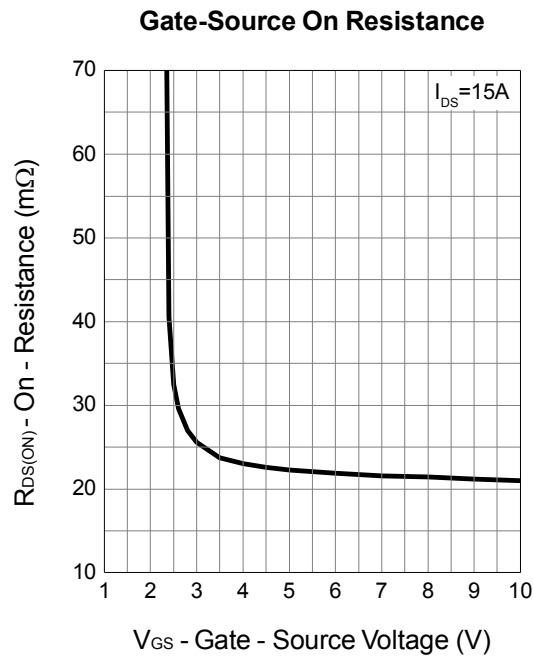
Note d : Pulse test ; pulse width≤300μs, duty cycle≤2%.

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

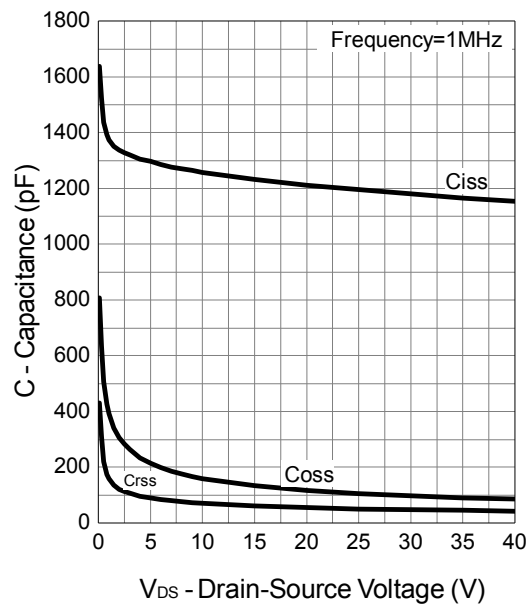
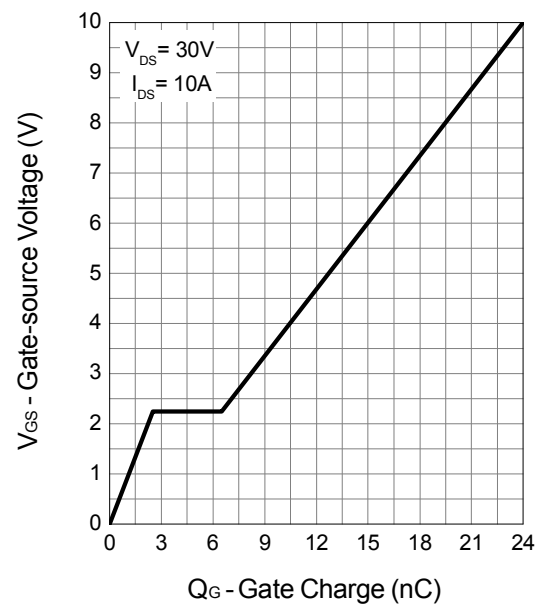
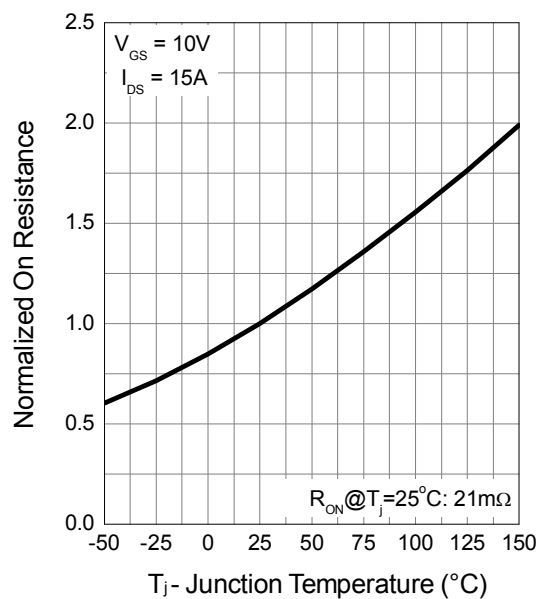
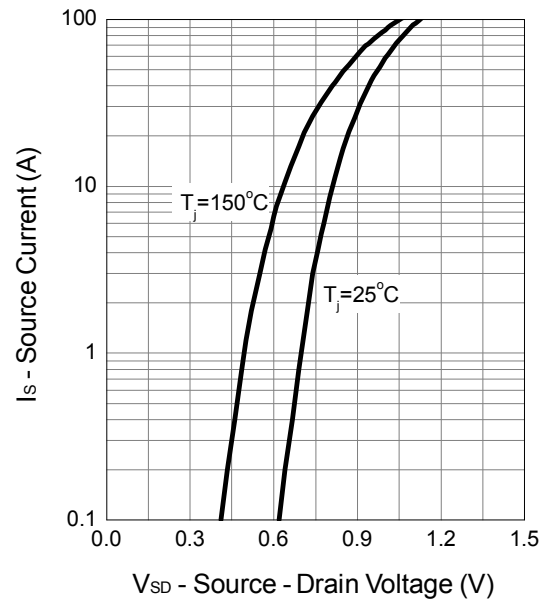
Typical Operating Characteristics



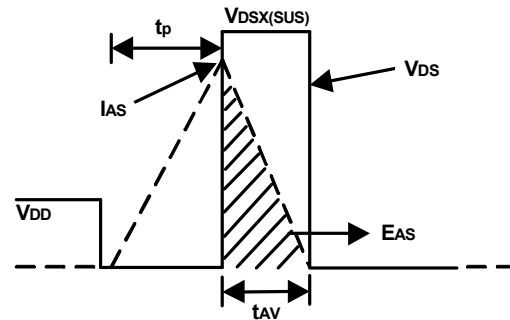
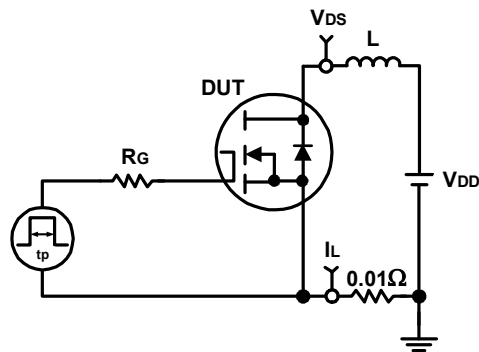
Typical Operating Characteristics (Cont.)



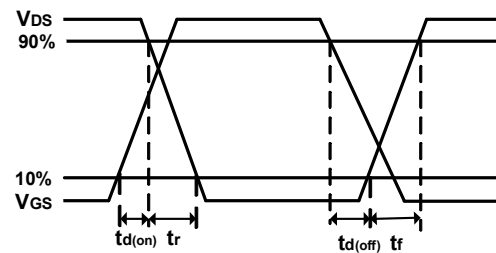
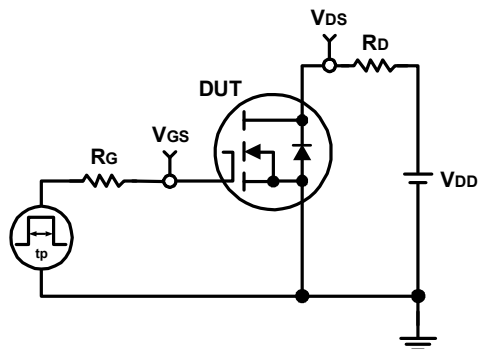
Typical Operating Characteristics (Cont.)

Capacitance

Gate Charge

Drain-Source On Resistance

Source-Drain Diode Forward


Avalanche Test Circuit and Waveforms



Switching Time Test Circuit and Waveforms



DFN3x3-8



RECOMMENDED LAND PATTERN

