

N-Channel Enhancement Mode Power MOSFET

● Features

$V_{DS} = 65V$,

$I_D = 54A$

$R_{DS(ON)} @ V_{GS} = 10V$, TYP $7m\Omega$

$R_{DS(ON)} @ V_{GS} = 4.5V$, TYP $10.5m\Omega$

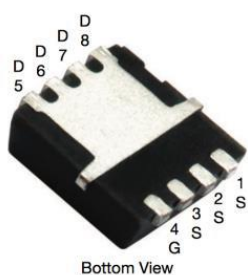
● General Description

- load switch
- power supply
- synchronous rectifier

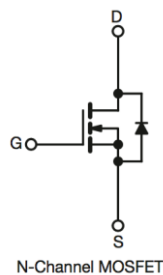
● Pin Configurations



Top View



Bottom View



N-Channel MOSFET

PDFN3*3-8L

● Absolute Maximum Ratings @ $T_A = 25^\circ C$ unless otherwise noted

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DSS}	65	V
Gate-Source Voltage		V_{GSS}	± 20	V
Drain Current (Continuous) *AC	$T_C = 25^\circ C$	I_D	54	A
	$T_C = 70^\circ C$		43	
Drain Current (Pulse) *B		I_{DM}	216	A
Power Dissipation	$T_C = 25^\circ C$	P_D	42	W
Operating Temperature/ Storage Temperature		T_J/T_{STG}	-55~150	$^\circ C$

● Thermal Resistance Ratings

Parameter		Symbol	Maximum	Unit
Maximum Junction-to-Case (Drain)	Steady State	R_{thJC}	3	$^\circ C/W$

● **Electrical Characteristics** @T_A=25°C unless otherwise noted

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static *D						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	65	--	--	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 60V, V _{GS} = 0V	--	--	1	μA
Gate Threshold Voltage	V _{GS(TH)}	V _{GS} = V _{DS} , I _{DS} = 250μA	1	--	3	V
Gate Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V	--	--	±100	nA
Drain-Source On-state Resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 20A	--	7	9	mΩ
	R _{DS(on)}	V _{GS} = 4.5V, I _D =10A	--	10.5	14	mΩ
Diode Forward Voltage	V _{SD}	I _{SD} = 1A , V _{GS} = 0V	--	--	1.2	V
Diode Forward Current *AB	I _S	T _C =25°C	--	--	35	A
Switching						
Total Gate Charge	Q _g	V _{GS} =30V,V _{DS} =10V,I _{DS} =12 A	--	27	--	nC
Gate-Source Charge	Q _{gs}		--	6.4	--	nC
Gate-Drain Charge	Q _{gd}		--	6.3	--	nC
Turn-on Delay Time	t _{d (on)}	V _{DS} =30V,V _{GEN} =10V,R _G =4.5Ω, R _L =2.5Ω,I _{DS} =12 A	--	8.6	--	ns
Turn-on Rise Time	t _r		--	23.5	--	ns
Turn-off Delay Time	t _{d(off)}		--	21	--	ns
Turn-Off Fall Time	t _f		--	16	--	ns
Dynamic						
Input Capacitance	C _{iss}	V _{DS} =30V,V _{GS} =0V, f=1.0MHz	--	1364	--	pF
Output Capacitance	C _{oss}		--	602	--	pF
Reverse Transfer Capacitance	C _{rss}		--	35	--	pF

A: The value of R_{θJA} is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with T_A=25°C. The value in any given application depends on the user's specific board design.

B: Repetitive rating, pulse width limited by junction temperature.

C: The current rating is based on the t_s 10s junction to ambient thermal resistance rating.

D: Pulse Test: Pulse Wide≤ 300μs, Duty Cycle≤ 2%.

● Typical Performance Characteristics ($T_J = 25^\circ\text{C}$, unless otherwise noted)

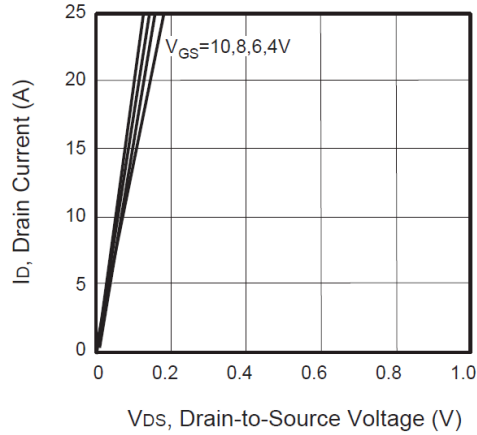


Figure 1. Output Characteristics

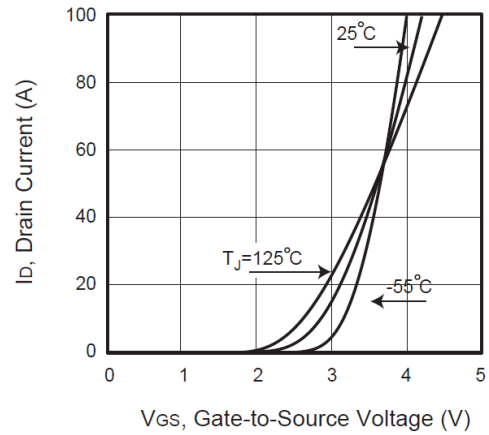


Figure 2. Transfer Characteristics

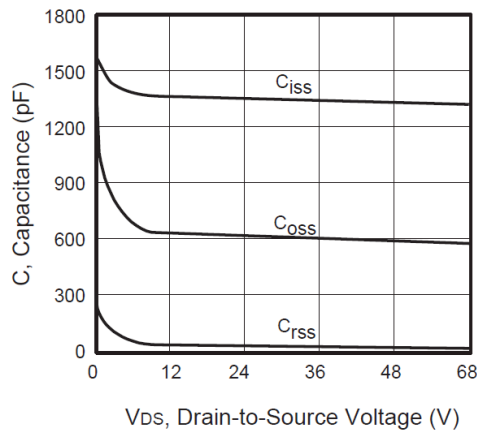


Figure 3. Capacitance

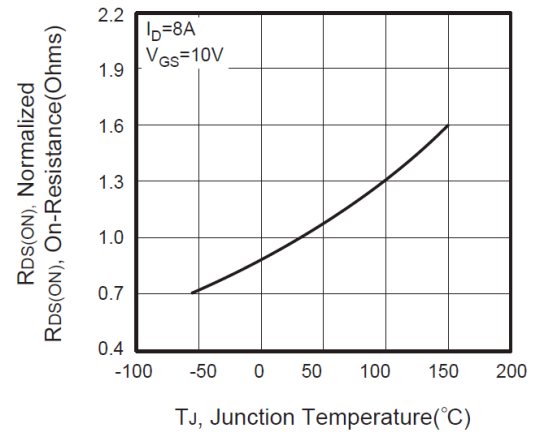


Figure 4. On-Resistance Variation with Temperature

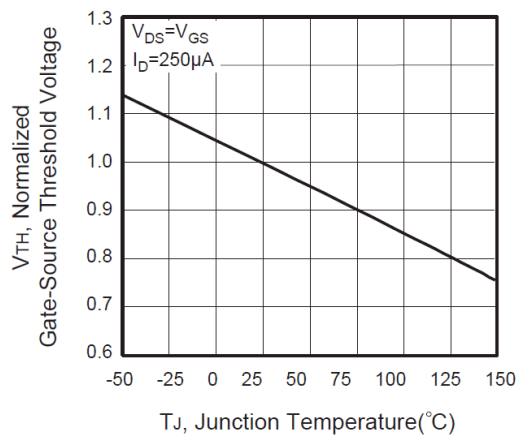


Figure 5. Gate Threshold Variation with Temperature

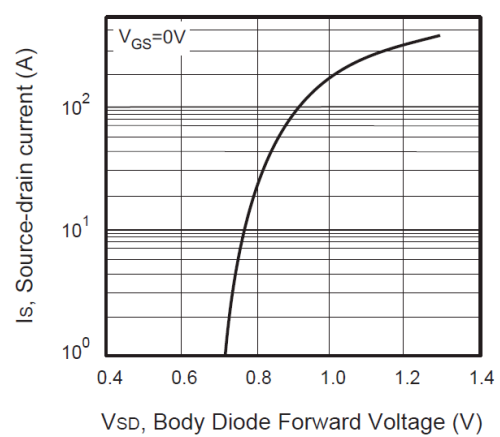
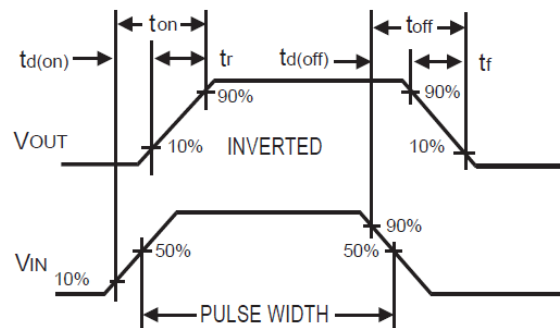
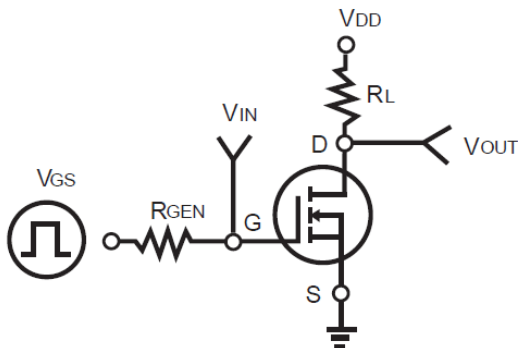
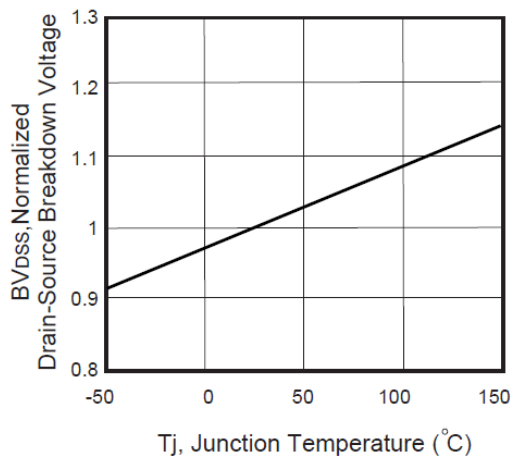
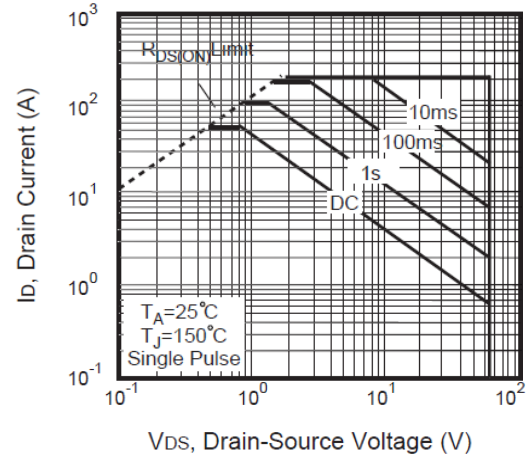
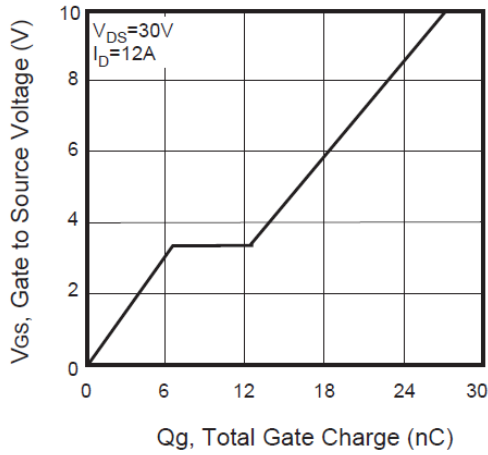


Figure 6. Body Diode Forward Voltage Variation with Source Current



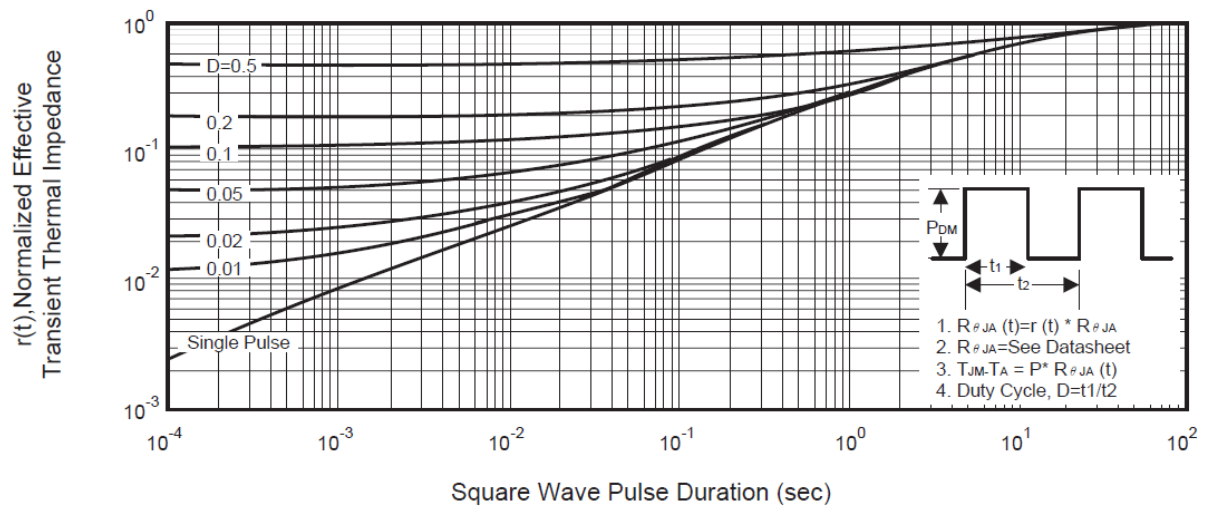


Figure 12. Normalized Thermal Transient Impedance Curve

● Package Information

