

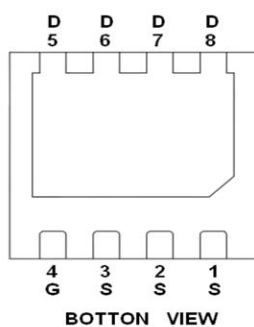
GENERAL FEATURES

- $V_{DS} = -60V$ $I_D = -13A$
- $R_{DS(ON)} < -100m\Omega$ @ $V_{GS}=10V$
- $R_{DS(ON)} < -140m\Omega$ @ $V_{GS}=4.5V$

Application

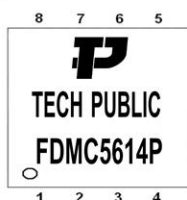
- Load/Power Switching
- Interfacing Switching
- Logic Level Shift

Package and Pin Configuration

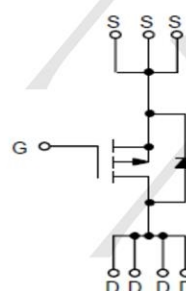


DFN3X3-8L

Marking:



Circuit diagram



Absolute Maximum Ratings ($T_A=25^\circ C$ unless otherwise noted)

Parameter	Symbol	Limits	Unit
Drain-Source Voltage	V_{DS}	-60	V
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current @ $V_{GS}=-10V$, $T_C=25^\circ C$	I_D	-13	A
Continuous Drain Current @ $V_{GS}=-10V$, $T_C=100^\circ C$		-6.2	
Continuous Drain Current @ $V_{GS}=-10V$, $T_A=25^\circ C$		-3.5	
Continuous Drain Current @ $V_{GS}=-10V$, $T_A=70^\circ C$		-2.4	
Pulsed Drain Current	I_{DM}	-35	
Continuous Body Diode Forward Current @ $T_C=25^\circ C$	I_S	-8.7	
Avalanche Current @ $L=0.1mH$	I_{AS}	-13	mJ
Avalanche Energy @ $L=0.5mH$	E_{AS}	25	
Total Power Dissipation	$T_C=25^\circ C$	15	W
	$T_C=100^\circ C$	6	
	$T_A=25^\circ C$	1.8	
	$T_A=70^\circ C$	1.1	
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55~+150	$^\circ C$

Thermal Data

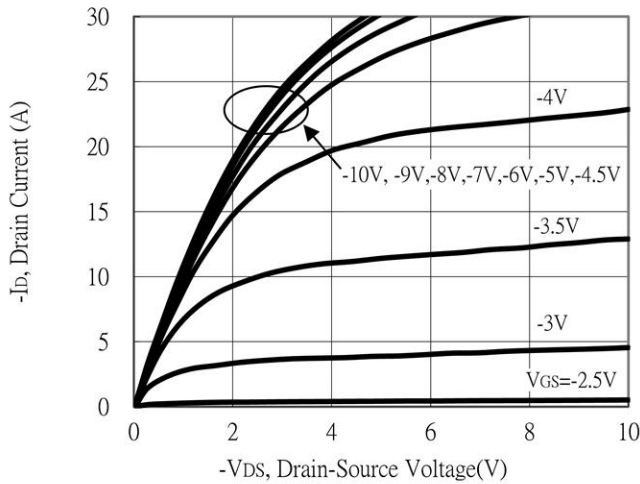
Parameter	Symbol	Steady State	Unit
Thermal Resistance, Junction-to-case	$R_{\theta JC}$	8.5	°C/W
Thermal Resistance, Junction-to-ambient *b	$R_{\theta JA}$	71	

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

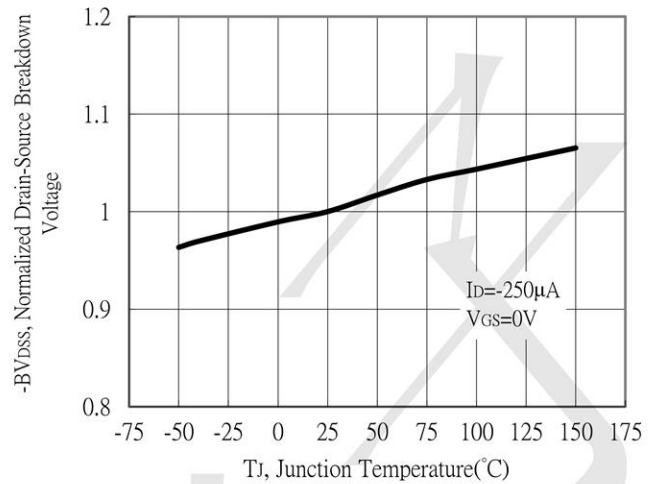
Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV _{DSS}	-60	-	-	V	V _{GS} =0V, I _D =-250μA
V _{GS(th)}	-1	-	-2.5		V _{DS} =V _{GS} , I _D =-250μA
G _{FS}	-	5	-	S	V _{DS} =-10V, I _D =-3A
I _{GSS}	-	-	±100	nA	V _{GS} =±20V, V _{DS} =0V
I _{DSS}	-	-	-1	μA	V _{DS} =-48V, V _{GS} =0V
R _{DS(ON)}	-	88	110	mΩ	V _{GS} =-10V, I _D =-3A
	-	98	140		V _{GS} =-4.5V, I _D =-2A
Dynamic					
C _{iss}	-	1000	-	pF	V _{DS} =-30V, V _{GS} =0V, f=1MHz
C _{oss}	-	50	-		
C _{rss}	-	42	-		
R _g	-	15	-	Ω	f=1MHz
Q _g *1, 2	-	20	-	nC	V _{DS} =-30V, I _D =-2A, V _{GS} =-10V
Q _{gs} *1, 2	-	3.3	-		
Q _{gd} *1, 2	-	3.8	-		
t _{d(ON)} *1, 2	-	8	-	ns	V _{DS} =-30V, I _D =-2A, V _{GS} =-10V, R _{GS} =3Ω
t _r *1, 2	-	17	-		
t _{d(OFF)} *1, 2	-	50	-		
t _f *1, 2	-	12	-		
Source-Drain Diode					
V _{SD} *1	-	-0.8	-1.2	V	I _S =-2A, V _{GS} =0V
t _{rr}	-	14	-	ns	I _F =-2A, dI _F /dt=100A/μs
Q _{rr}	-	10	-	nC	

Typical Electrical and Thermal Characteristics

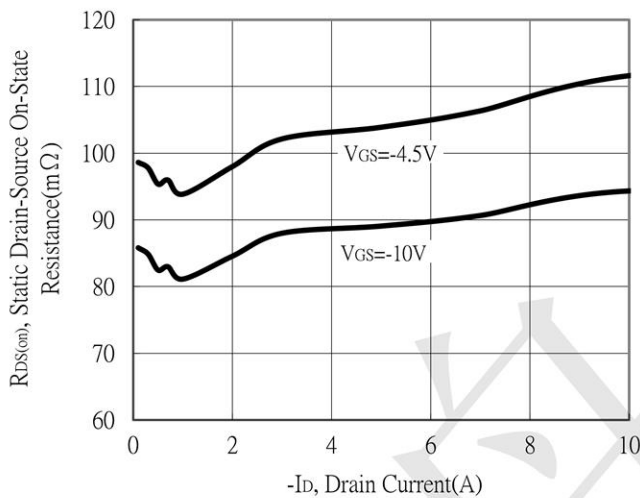
Typical Output Characteristics



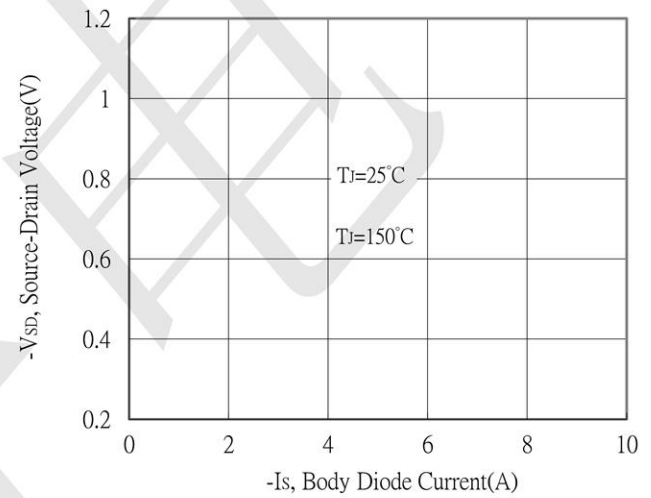
Breakdown Voltage vs Ambient Temperature



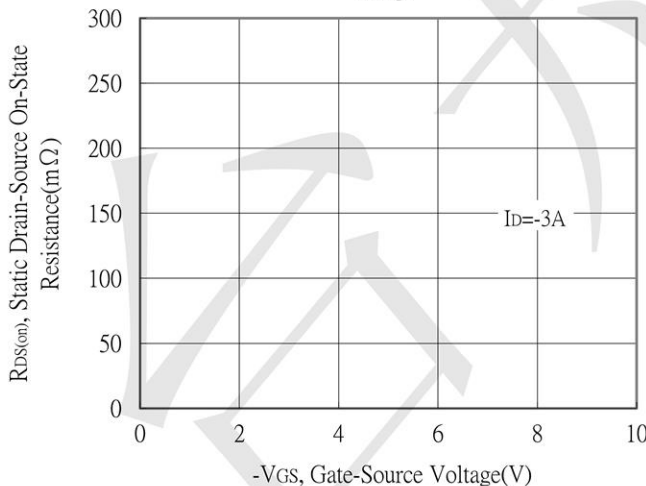
Static Drain-Source On-State resistance vs Drain Current



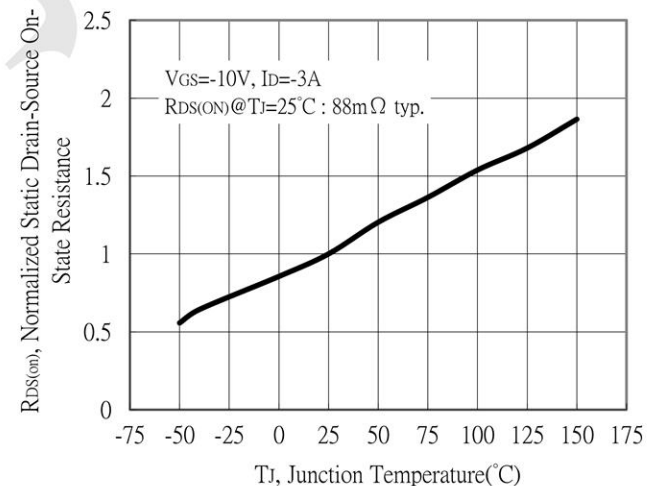
Body Diode Current vs Source-Drain Voltage



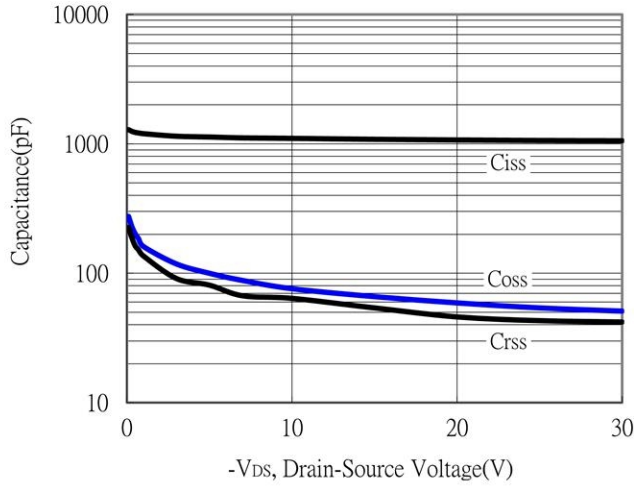
Static Drain-Source On-State Resistance vs Gate-Source Voltage



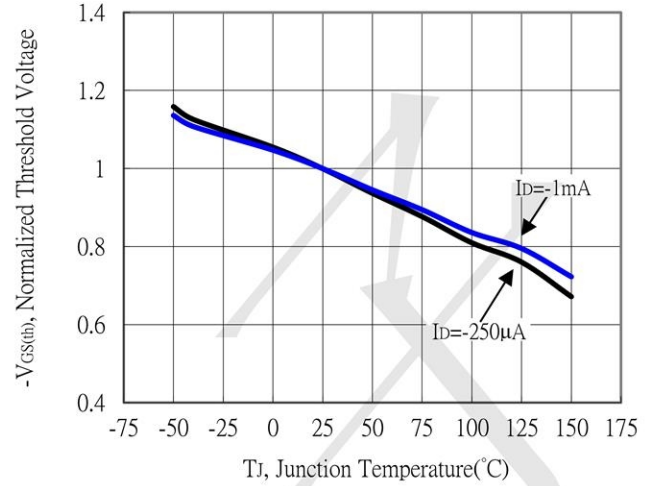
Drain-Source On-State Resistance vs Junction Temperature



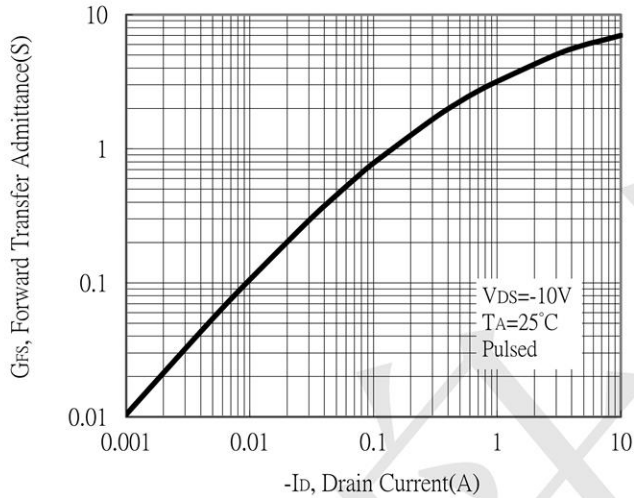
Capacitance vs Drain-to-Source Voltage



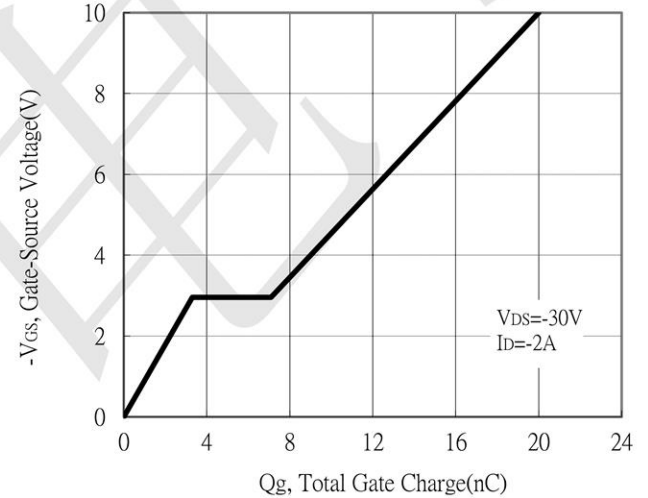
Threshold Voltage vs Junction Temperature



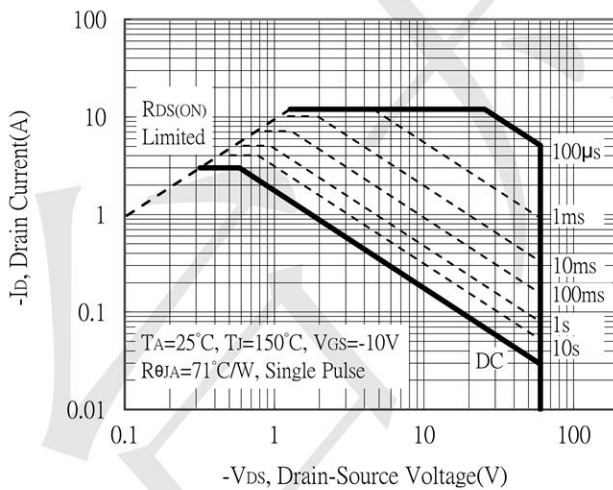
Forward Transfer Admittance vs Drain Current



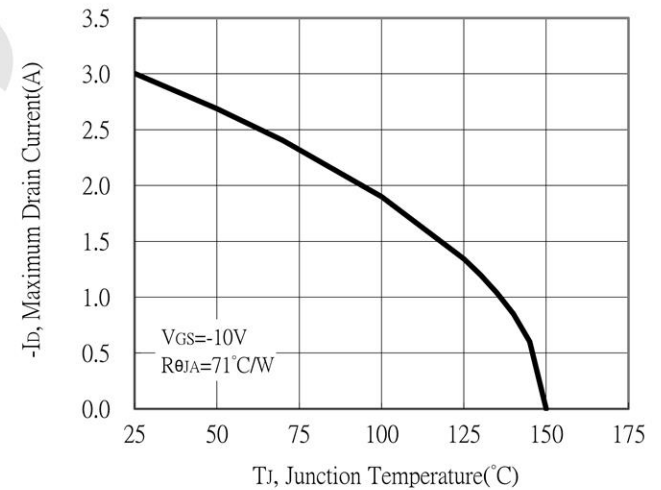
Gate Charge Characteristics



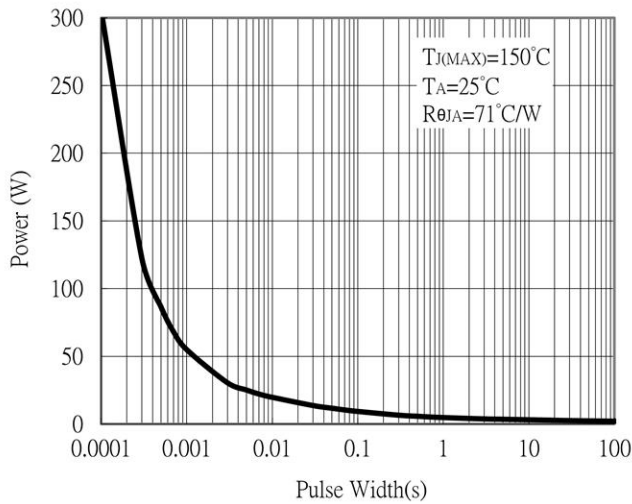
Maximum Safe Operating Area



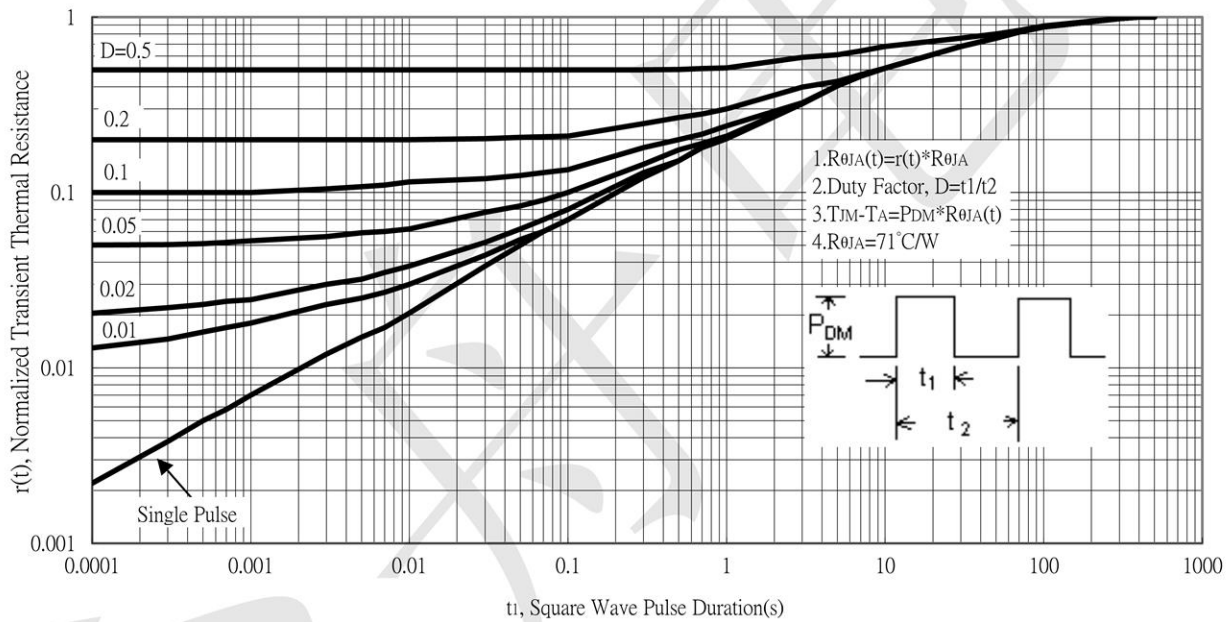
Maximum Drain Current vs Junction Temperature



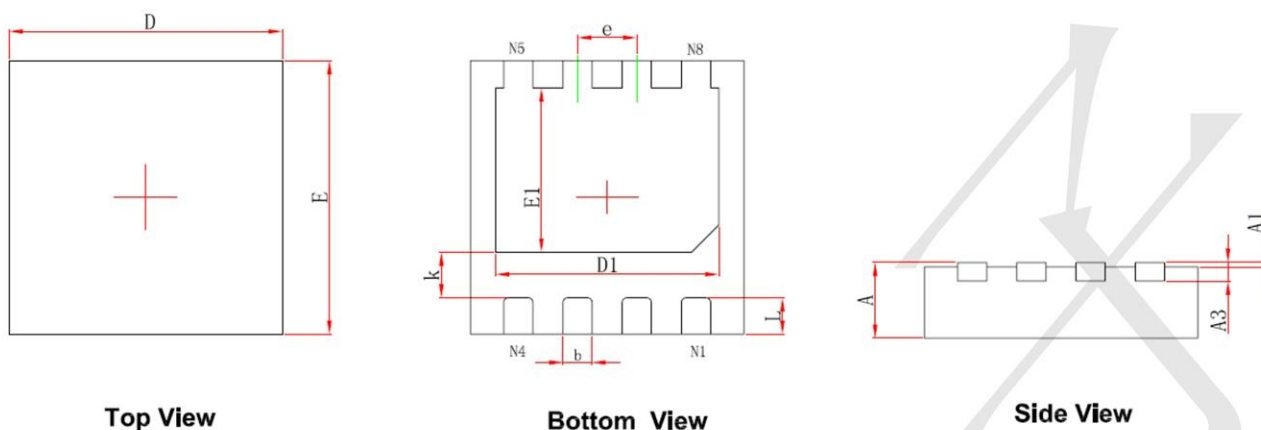
Single Pulse Power Rating, Junction to Ambient



Transient Thermal Response Curves



Package Information (DFN3X3-8L)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.800	0.900	0.031	0.035
A1	0.000	0.050	0.000	0.002
A3	0.203REF.		0.008REF.	
D	2.924	3.076	0.115	0.121
E	2.924	3.076	0.115	0.121
D1	2.350	2.550	0.093	0.100
E1	1.700	1.900	0.067	0.075
k	0.450	0.550	0.018	0.022
b	0.270	0.370	0.011	0.015
e	0.650TYP.		0.026TYP.	
L	0.324	0.476	0.013	0.019