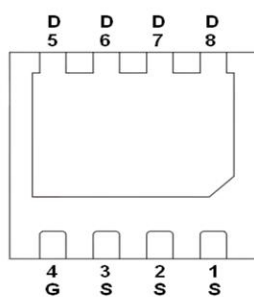


### GENERAL FEATURES

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

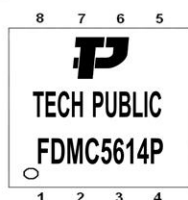
### Package and Pin Configuration



BOTTOM VIEW

DFN3X3-8L

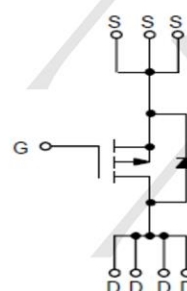
### Marking:



### Application

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

### 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	$V_{GS}$	$\pm 20$		
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		
Avalanche Energy @ $L=0.5mH$	$E_{AS}$	25	mJ	
Total Power Dissipation	$P_D$	$T_C=25^\circ C$	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**

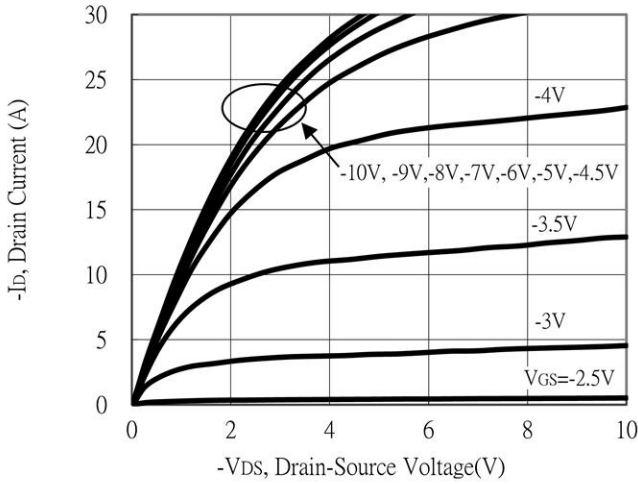
Parameter	Symbol	Steady State	Unit
Thermal Resistance, Junction-to-case	R <sub>θJC</sub>	8.5	°C/W
Thermal Resistance, Junction-to-ambient *b	R <sub>θJA</sub>	71	

**Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)**

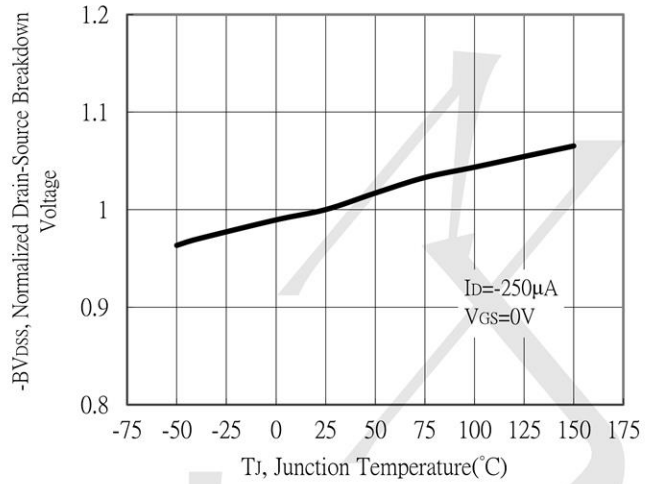
Symbol	Min.	Typ.	Max.	Unit	Test Conditions
<b>Static</b>					
BV <sub>DSS</sub>	-60	-	-	V	V <sub>GS</sub> =0V, I <sub>D</sub> =-250μA
V <sub>GS(th)</sub>	-1	-	-2.5		V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250μA
G <sub>FS</sub>	-	5	-	S	V <sub>DS</sub> =-10V, I <sub>D</sub> =-3A
I <sub>GSS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

**Typical Electrical and Thermal Characteristics**

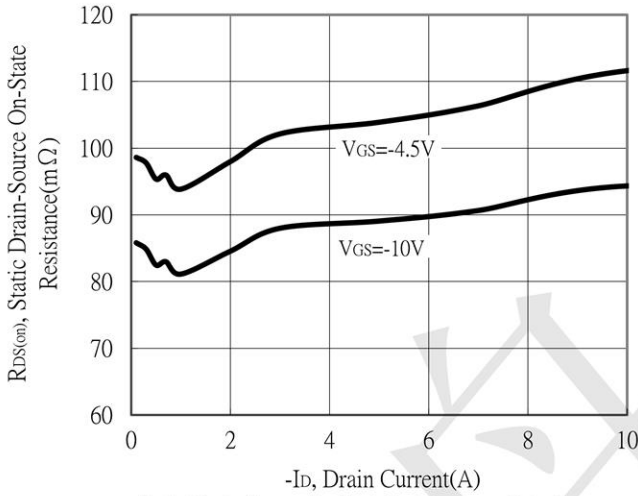
Typical Output Characteristics



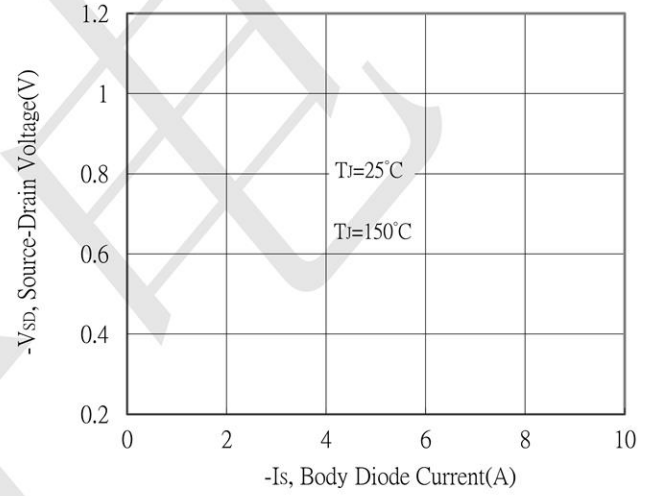
Breakdown Voltage vs Ambient Temperature



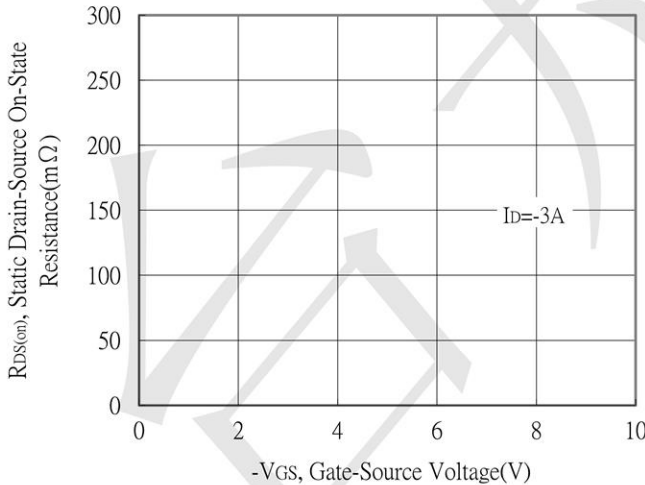
Static Drain-Source On-State resistance vs Drain Current



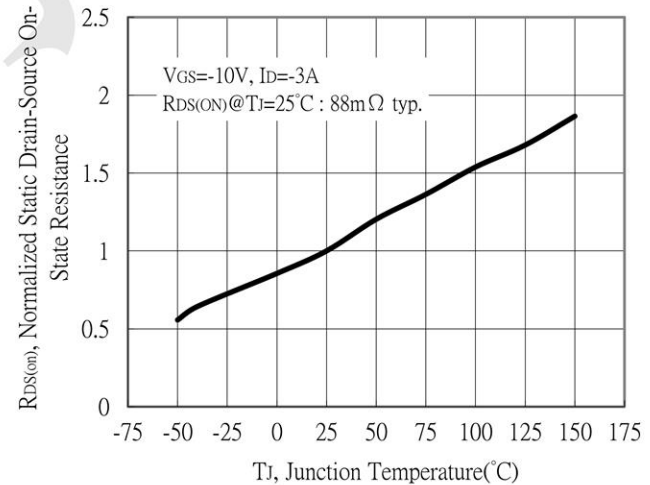
Body Diode Current vs Source-Drain Voltage



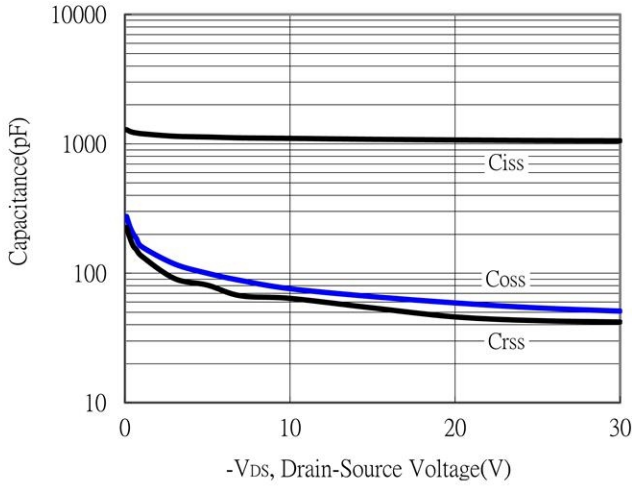
Static Drain-Source On-State Resistance vs Gate-Source Voltage



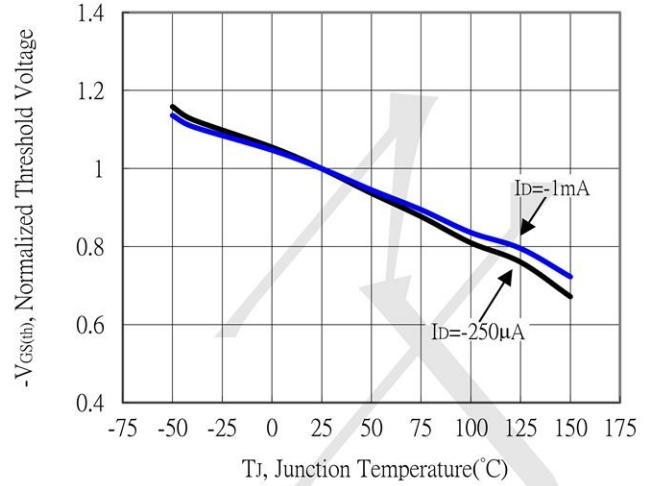
Drain-Source On-State Resistance vs Junction Temperature



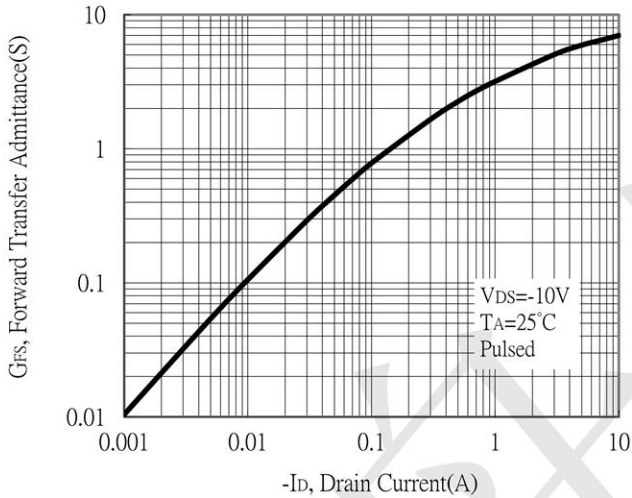
Capacitance vs Drain-to-Source Voltage



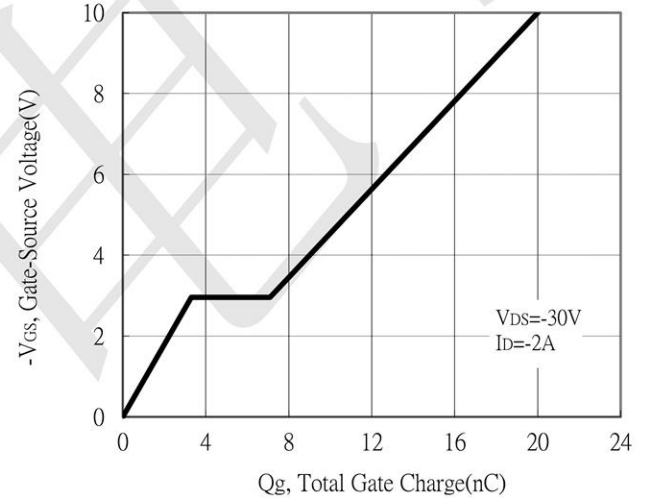
Threshold Voltage vs Junction Temperature



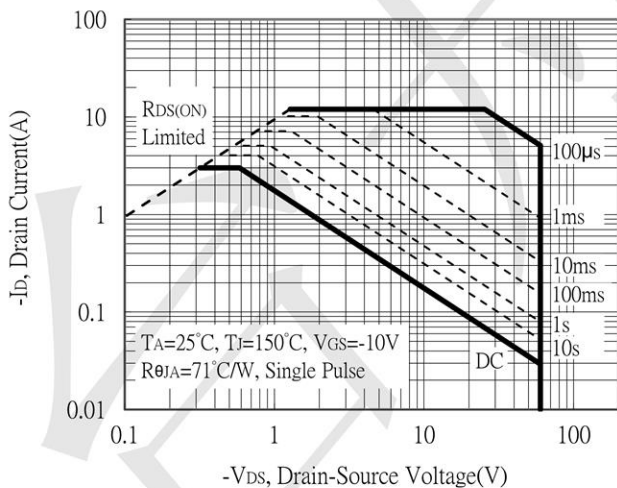
Forward Transfer Admittance vs Drain Current



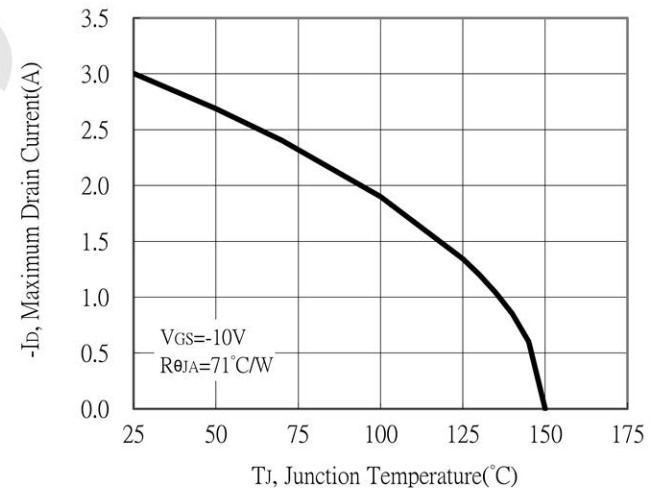
Gate Charge Characteristics



Maximum Safe Operating Area

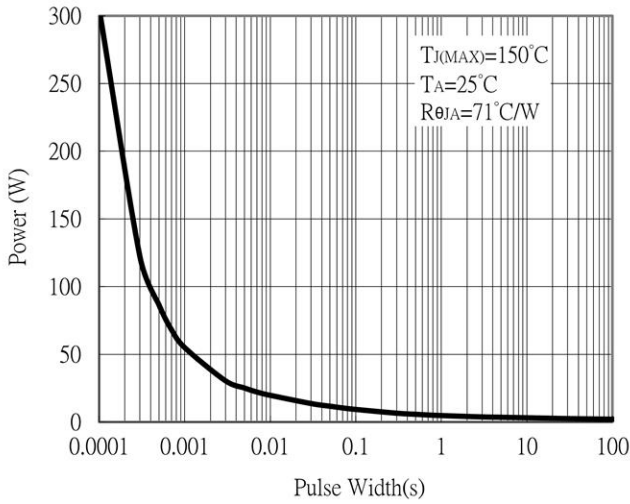


Maximum Drain Current vs Junction Temperature

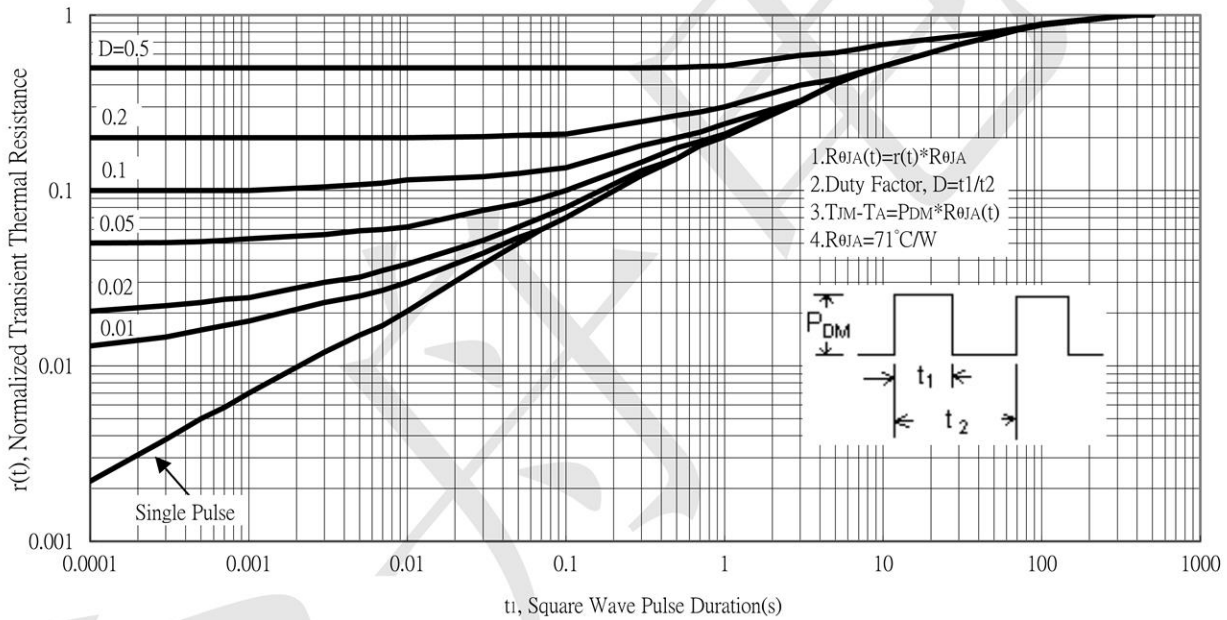




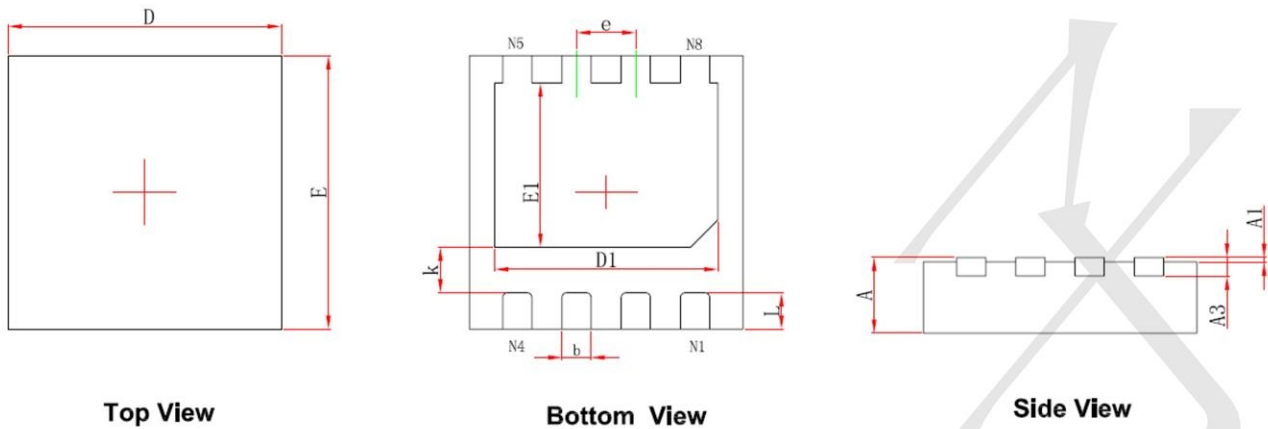
Single Pulse Power Rating, Junction to Ambient



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

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