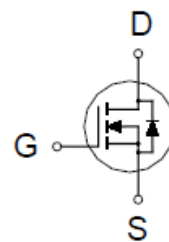
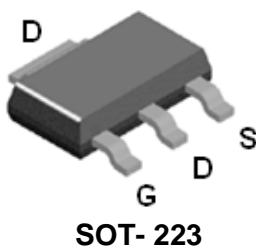


## PF610BL

### N-Channel Enhancement Mode MOSFET

#### PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	$I_D$
100V	0.7Ω @ $V_{GS} = 10V$	0.9A



#### ABSOLUTE MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Gate-Source Voltage		$V_{GS}$	±20	V
Continuous Drain Current	$T_A = 25\text{ °C}$	$I_D$	0.9	A
	$T_A = 70\text{ °C}$		0.5	
Pulsed Drain Current <sup>1</sup>		$I_{DM}$	5.4	
Avalanche Current		$I_{AS}$	3.8	
Avalanche Energy	$L = 1mH$	$E_{AS}$	7.2	mJ
Power Dissipation	$T_A = 25\text{ °C}$	$P_D$	1.3	W
	$T_A = 70\text{ °C}$		0.5	
Operating Junction & Storage Temperature Range		$T_J, T_{STG}$	-55 to 150	°C

#### THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient	$R_{\theta JA}$		95	°C / W

<sup>1</sup>Pulse width limited by maximum junction temperature.



# PF610BL

## N-Channel Enhancement Mode MOSFET

### ELECTRICAL CHARACTERISTICS (T<sub>J</sub> = 25 °C, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
<b>STATIC</b>						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA	100			V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	1	1.8	3	V
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = ±20V			±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 80V, V <sub>GS</sub> = 0V			1	μA
		V <sub>DS</sub> = 80V, V <sub>GS</sub> = 0V, T <sub>J</sub> = 125 °C			10	
On-State Drain Current <sup>1</sup>	I <sub>D(ON)</sub>	V <sub>DS</sub> = 5V, V <sub>GS</sub> = 10V	5.4			A
Drain-Source On-State Resistance <sup>1</sup>	R <sub>DS(ON)</sub>	V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 0.5A		0.52	0.9	Ω
		V <sub>GS</sub> = 10V, I <sub>D</sub> = 0.9A		0.48	0.7	
Forward Transconductance <sup>1</sup>	g <sub>fs</sub>	V <sub>DS</sub> = 5V, I <sub>D</sub> = 0.9A		2		S
<b>DYNAMIC</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> = 0V, V <sub>DS</sub> = 25V, f = 1MHz		246		pF
Output Capacitance	C <sub>oss</sub>			65		
Reverse Transfer Capacitance	C <sub>rss</sub>			20		
Gate Resistance	R <sub>g</sub>	V <sub>GS</sub> = 0V, V <sub>DS</sub> = 0V, f = 1MHz		2.1		Ω
Total Gate Charge <sup>2</sup>	Q <sub>g</sub>	V <sub>DS</sub> = 0.5V <sub>(BR)DSS</sub> I <sub>D</sub> = 0.9A, V <sub>GS</sub> = 10V		7.2		nC
Gate-Source Charge <sup>2</sup>	Q <sub>gs</sub>			1		
Gate-Drain Charge <sup>2</sup>	Q <sub>gd</sub>			3		
Turn-On Delay Time <sup>2</sup>	t <sub>d(on)</sub>	V <sub>DS</sub> = 50V, I <sub>D</sub> ≅ 0.9A, V <sub>GS</sub> = 10V, R <sub>GS</sub> = 4.7Ω		8		nS
Rise Time <sup>2</sup>	t <sub>r</sub>			11		
Turn-Off Delay Time <sup>2</sup>	t <sub>d(off)</sub>			26		
Fall Time <sup>2</sup>	t <sub>f</sub>			13.5		
<b>SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T<sub>J</sub> = 25 °C)</b>						
Continuous Current	I <sub>S</sub>				0.9	A
Forward Voltage <sup>1</sup>	V <sub>SD</sub>	I <sub>F</sub> = 0.9A, V <sub>GS</sub> = 0V			1.2	V
Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = 2 A, dI/dt = 100A / μS		32		nS
Reverse Recovery Charge	Q <sub>rr</sub>				35	

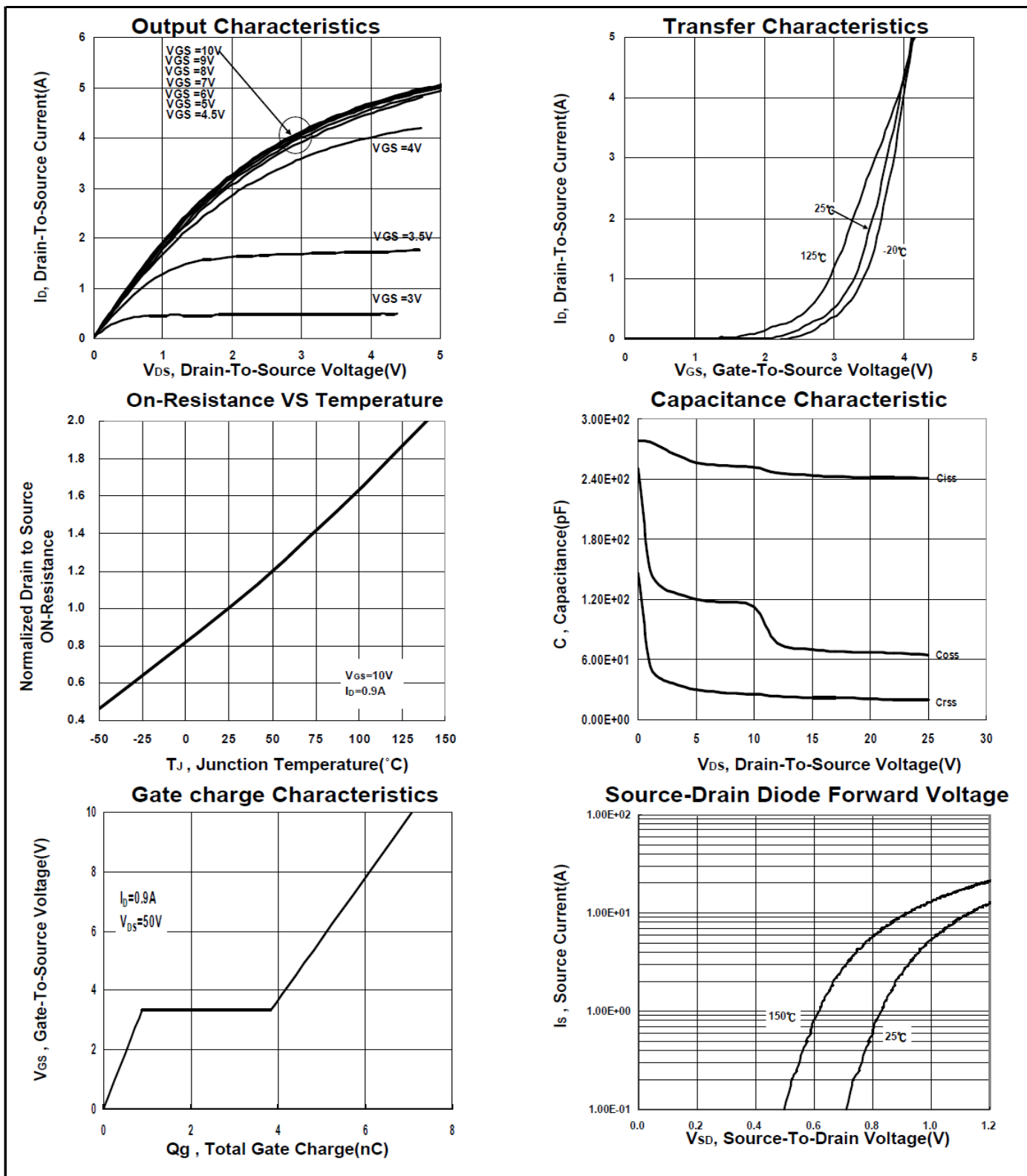
<sup>1</sup>Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

<sup>2</sup>Independent of operating temperature.



# PF610BL

## N-Channel Enhancement Mode MOSFET

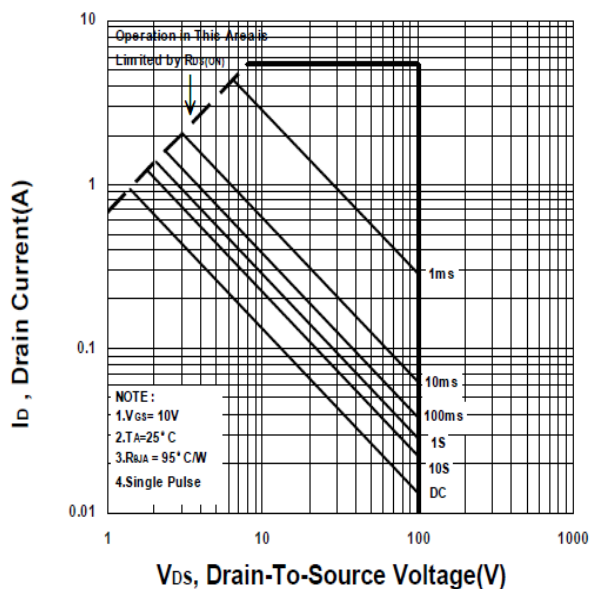




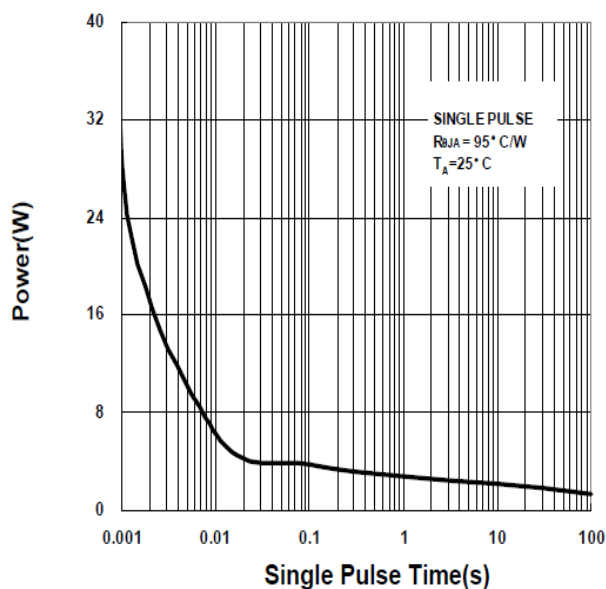
# PF610BL

## N-Channel Enhancement Mode MOSFET

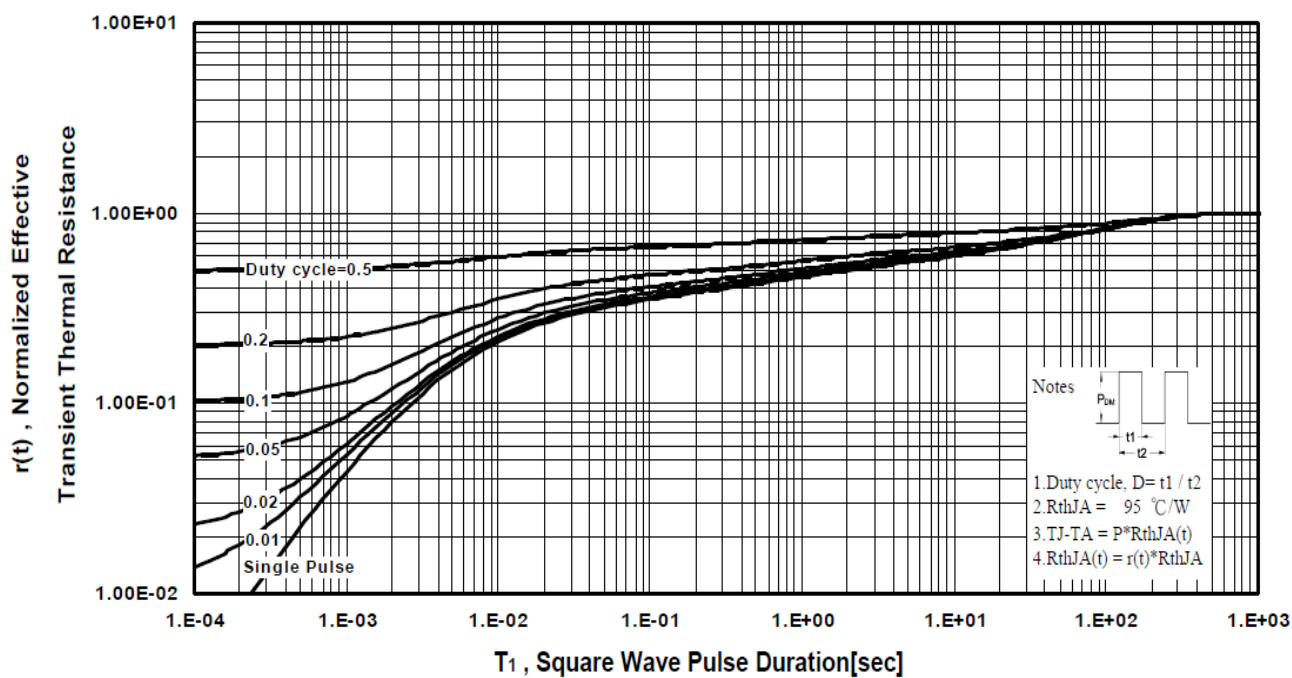
### Safe Operating Area



### Single Pulse Maximum Power Dissipation



### Transient Thermal Response Curve





# PF610BL

## N-Channel Enhancement Mode MOSFET

### SOT-223 MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	0.60	0.76	0.84	H	3.30	3.50	3.70
B	6.70	7.00	7.30	I	0.50	1.00	1.20
C	2.85	3.00	3.10	J	0.23	0.3	0.4
D	2.25	2.30	2.35	K	0°		10°
E	4.35	4.60	4.85	L	0	0.1	0.2
F	1.40	1.60	1.80	M			
G	6.30	6.50	6.80	N			

