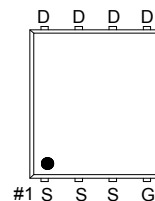
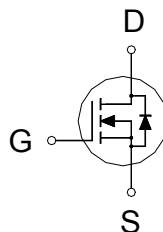


PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
30V	9m Ω	53A



G. GATE
D. DRAIN
S. SOURCE

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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current	$T_C = 25^\circ\text{C}$ (Package Limited)	I_D	30	A
	$T_C = 25^\circ\text{C}$ (Silicon Limited)		53	
	$T_C = 100^\circ\text{C}$		33	
Pulsed Drain Current ¹		I_{DM}	140	
Continuous Drain Current	$T_A = 25^\circ\text{C}$	I_D	13	
	$T_A = 70^\circ\text{C}$		10	
Avalanche Current		I_{AS}	49	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	120	mJ
Power Dissipation	$T_C = 25^\circ\text{C}$	P_D	42	W
	$T_C = 100^\circ\text{C}$		17	
Power Dissipation	$T_A = 25^\circ\text{C}$	P_D	2.5	W
	$T_A = 70^\circ\text{C}$		1.6	
Operating Junction & Storage Temperature Range		T_j, T_{stg}	-55 to 150	$^\circ\text{C}$

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE		SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient	Steady-State	$R_{\theta JA}$		50	$^\circ\text{C} / \text{W}$
Junction-to-Case	Steady-State	$R_{\theta JC}$		3	

¹Pulse width limited by maximum junction temperature.

ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$, Unless Otherwise Noted)

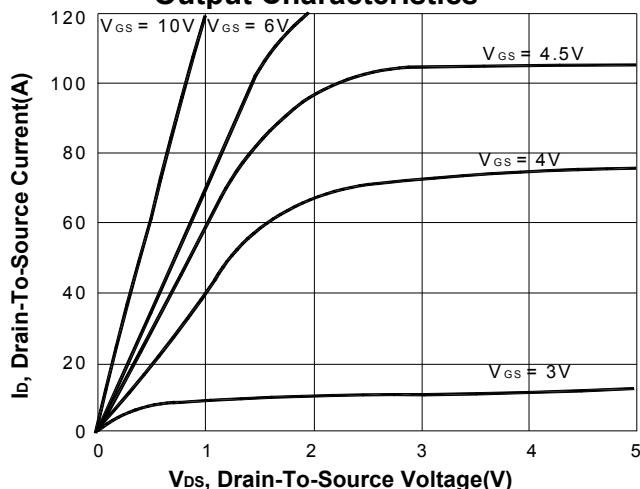
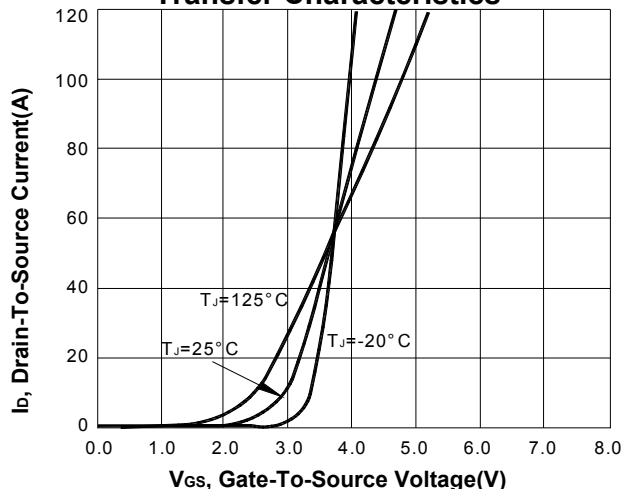
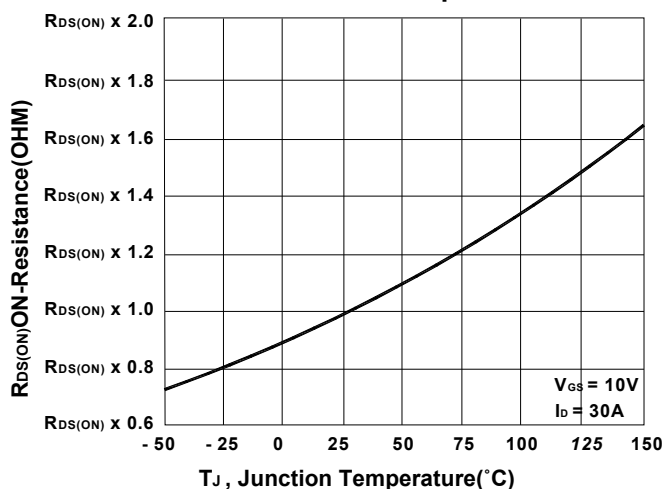
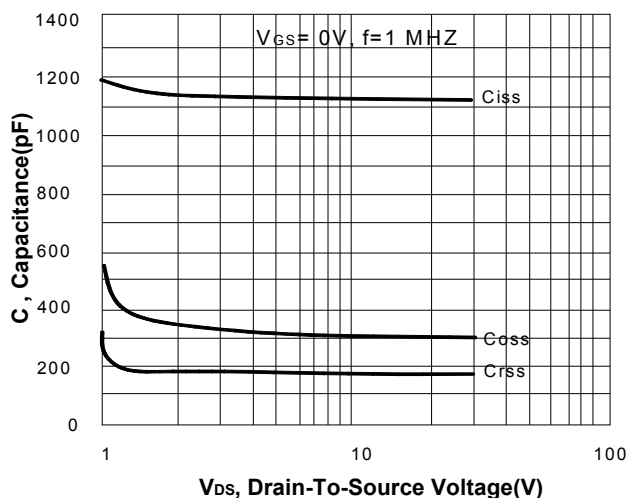
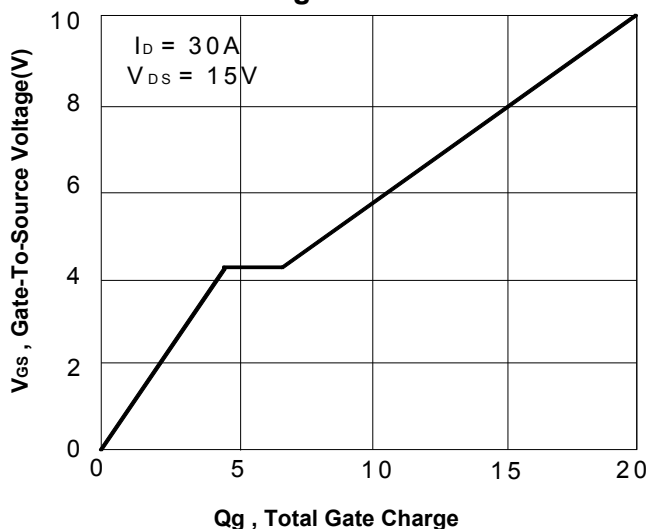
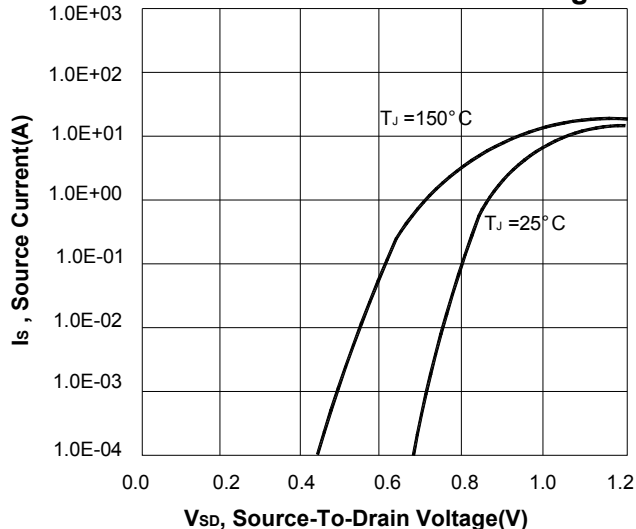
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	30			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1	1.65	3.0	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 100	nA

Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 24V, V _{GS} = 0V			1	μA	
		V _{DS} = 20V, V _{GS} = 0V, T _J = 55 °C			10		
Drain-Source On-State Resistance ¹	R _{DS(ON)}	V _{GS} =4.5V, I _D = 15A		10	16	mΩ	
		V _{GS} = 10V, I _D = 30A		6	9		
Forward Transconductance ¹	g _{fs}	V _{DS} = 15V, I _D = 17A		60		S	
DYNAMIC							
Input Capacitance	C _{iss}		V _{GS} = 0V, V _{DS} = 15V, f = 1MHz		1140		pF
Output Capacitance	C _{oss}				299		
Reverse Transfer Capacitance	C _{rss}				178		
Gate Resistance	R _g		V _{GS} = 0V, V _{DS} = 0V, f = 1MHz		1.49		Ω
Total Gate Charge ²	Q _g	V _{GS} = 10V	V _{DS} = 0.5V _{(BR)DSS} , V _{GS} = 10V, I _D = 30A		22		nC
		V _{GS} = 4.5V			10		
Gate-Source Charge ²	Q _{gs}			4.5			
Gate-Drain Charge ²	Q _{gd}			4			
Turn-On Delay Time ²	t _{d(on)}	V _{DS} = 15V , R _L = 1.5Ω I _D ≅ 10A, V _{GS} = 10V, R _{GEN} =6Ω			18		
Rise Time ²	t _r			10			
Turn-Off Delay Time ²	t _{d(off)}			35			
Fall Time ²	t _f			10			
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T _J = 25 °C)							
Continuous Current	I _S					30	A
Forward Voltage ¹	V _{SD}	I _F = 30A, V _{GS} = 0V				1.2	V
Reverse Recovery Time	t _{rr}	I _F = 30A, dI _F /dt = 100A / μS			30	55	nS

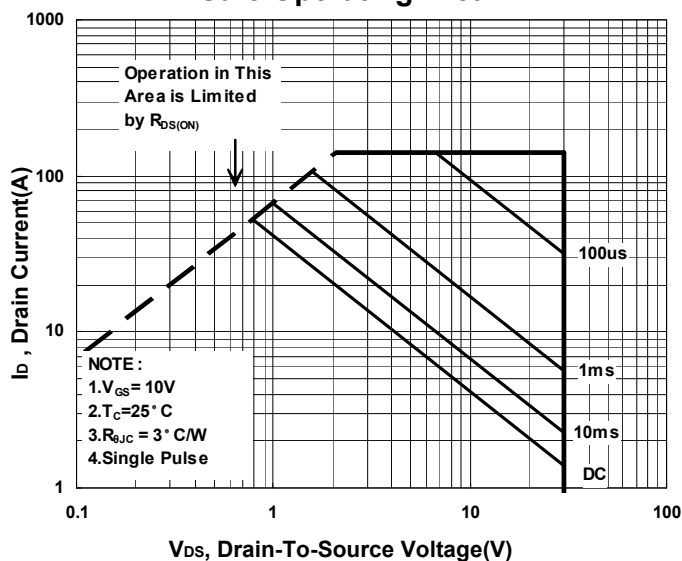
¹Pulse test : Pulse Width $\leq 300 \mu sec$, Duty Cycle $\leq 2\%$.

²Independent of operating temperature.

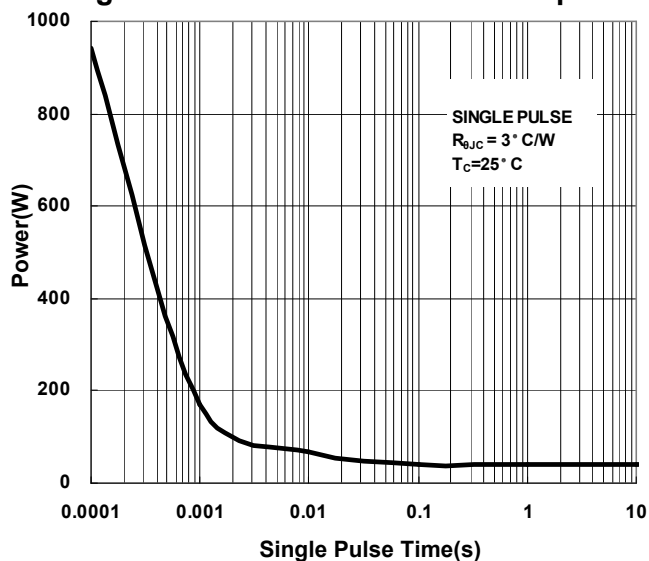
REMARK: THE PRODUCT MARKED WITH "P0903BK", DATE CODE or LOT #

Output Characteristics

Transfer Characteristics

On-Resistance VS Temperature

Capacitance Characteristic

Gate charge Characteristics

Source-Drain Diode Forward Voltage


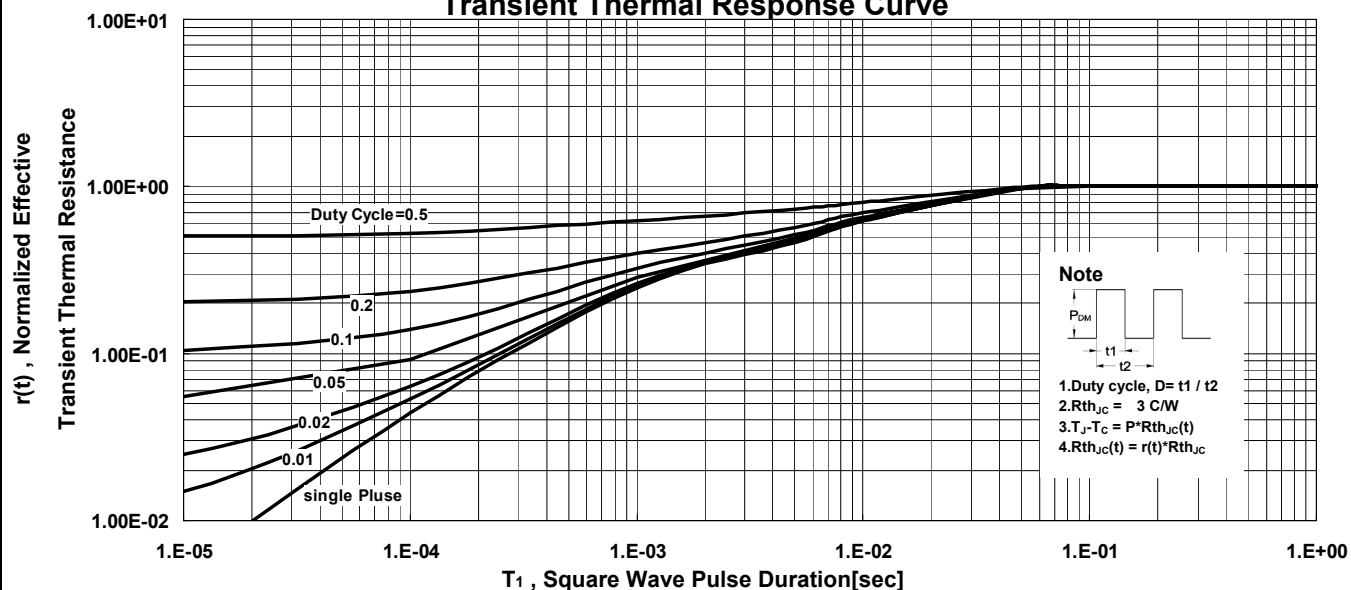
Safe Operating Area



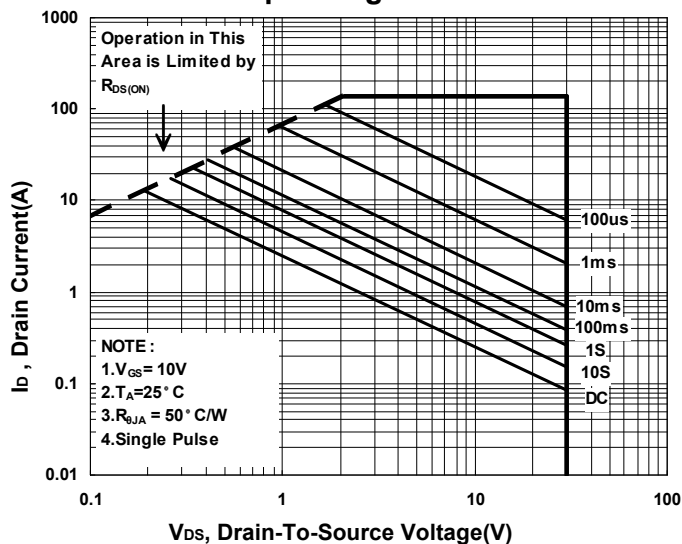
Single Pulse Maximum Power Dissipation



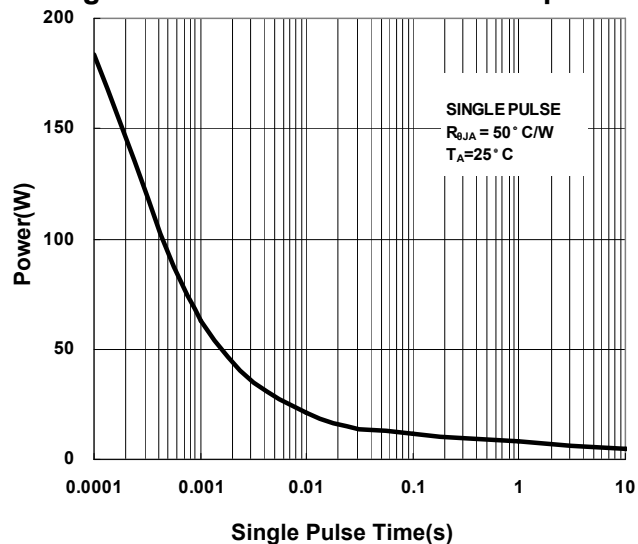
Transient Thermal Response Curve



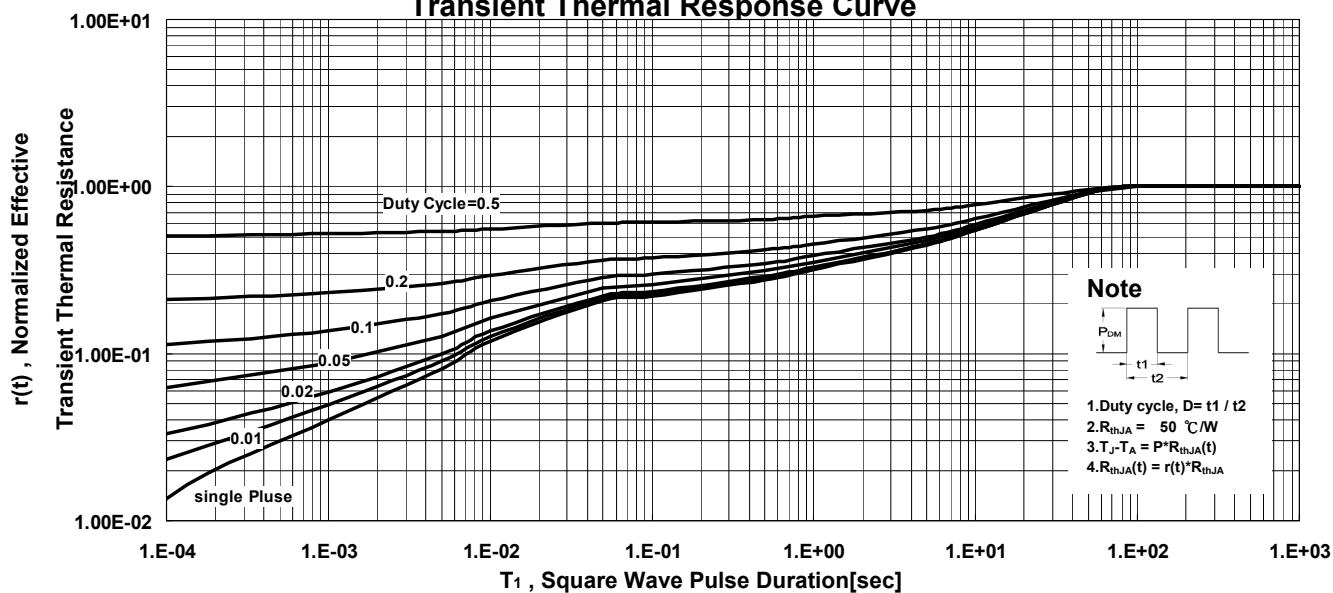
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



Package Dimension
PDFN 5x6P MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	4.8	4.9	5.1	I	0.35	0.53	0.71
B	5.7	5.75	5.825	J	3.34	3.56	3.78
C	5.9	6.0	6.1	K	1.1		
D	0.33	0.41	0.51	L	0.350	0.61	0.72
E		1.27		M	8°	10°	12°
F	0.8	1.0	1.2	N			5.3
G	0.17	0.25	0.34	O	0.05	0.1	0.20
H	3.67	3.85	4.02	P			0.1

