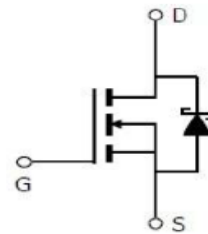
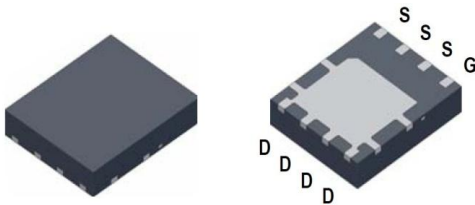


PK610SA

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PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
30V	2.8mΩ @ $V_{GS} = 10V$	83A



PDFN 5X6P

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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current ²	$T_C = 25\text{ °C}$	I_D	83	A
	$T_C = 100\text{ °C}$		52	
Pulsed Drain Current ¹		I_{DM}	150	
Continuous Drain Current	$T_A = 25\text{ °C}$	I_D	22	
	$T_A = 70\text{ °C}$		18	
Avalanche Current		I_{AS}	37	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	68.5	mJ
Power Dissipation	$T_C = 25\text{ °C}$	P_D	34	W
	$T_C = 100\text{ °C}$		13	
Power Dissipation	$T_A = 25\text{ °C}$	P_D	2.3	W
	$T_A = 70\text{ °C}$		1.5	
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 ³	$R_{\theta JA}$		53	°C / W
Junction-to-Case	$R_{\theta JC}$		3.6	

¹Pulse width limited by maximum junction temperature.

²Package limitation current is 45A

³The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25\text{ °C}$.

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ELECTRICAL CHARACTERISTICS (T_J = 25 °C, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNITS
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 1mA	30			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1.3	1.6	2.3	
Gate-Body Leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 24V, V _{GS} = 0V			0.5	mA
		V _{DS} = 20V, V _{GS} = 0V, T _J = 55 °C			5	
Drain-Source On-State Resistance ¹	R _{DS(ON)}	V _{GS} = 4.5V, I _D = 16A		2.7	3.5	mΩ
		V _{GS} = 10V, I _D = 20A		2	2.8	
Forward Transconductance ¹	g _{fs}	V _{DS} = 5V, I _D = 20A		65		S
DYNAMIC						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = 15V, f = 1MHz		2030		pF
Output Capacitance	C _{oss}			386		
Reverse Transfer Capacitance	C _{rss}			230		
Gate Resistance	R _g	V _{GS} = 0V, V _{DS} = 0V, f = 1MHz		1.5		Ω
Total Gate Charge ²	Q _g	V _{DS} = 15V, V _{GS} = 10V, I _D = 20A		41		nC
Gate-Source Charge ²	Q _{gs}			5.5		
Gate-Drain Charge ²	Q _{gd}			11		
Turn-On Delay Time ²	t _{d(on)}	I _D ≅ 20A, V _{GS} = 10V, R _{GEN} = 6Ω		30		nS
Rise Time ²	t _r			22		
Turn-Off Delay Time ²	t _{d(off)}			53		
Fall Time ²	t _f			21		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current ³	I _S				34	A
Forward Voltage ¹	V _{SD}	I _F = 20A, V _{GS} = 0V			1	V
Reverse Recovery Time	t _{rr}	I _F = 20A, dI _F /dt = 100A / μS		15		nS
Reverse Recovery Charge	Q _{rr}			4		nC

¹Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

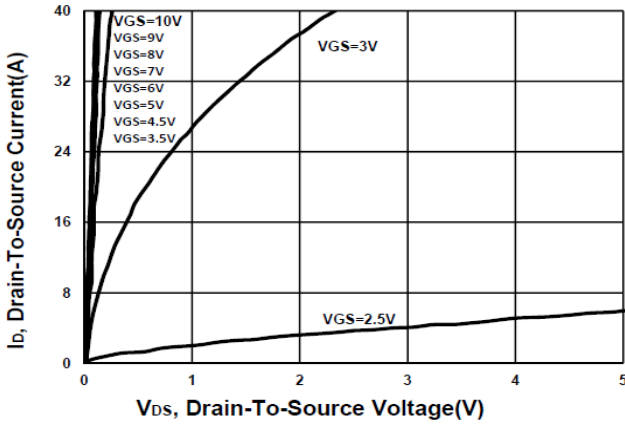
²Independent of operating temperature.

³Package limitation current is 45A.

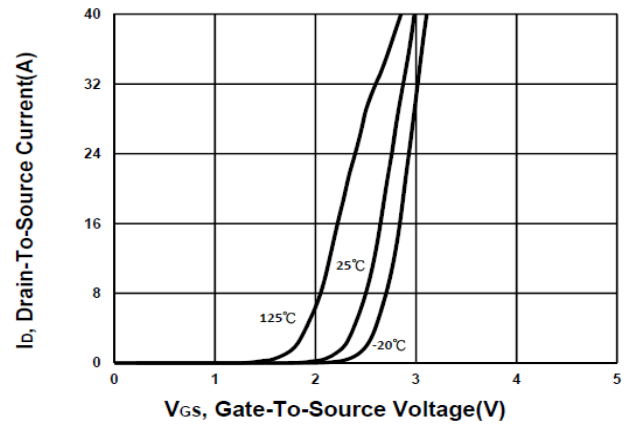
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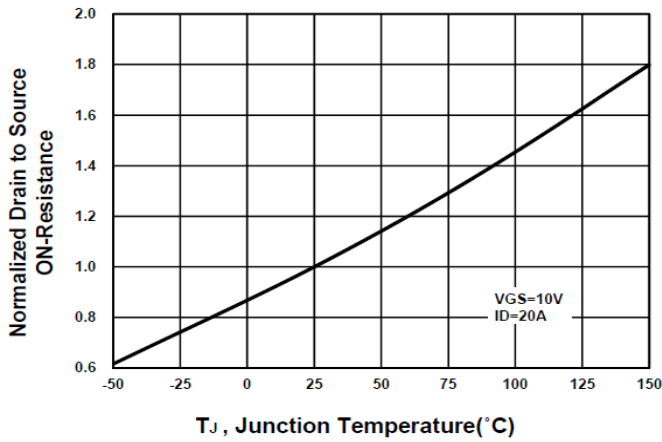
Output Characteristics



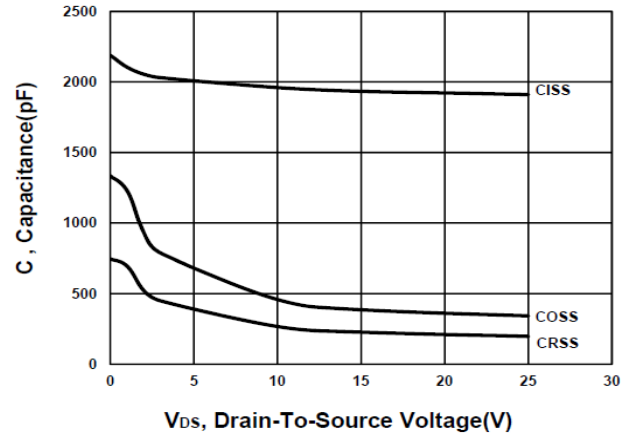
Transfer Characteristics



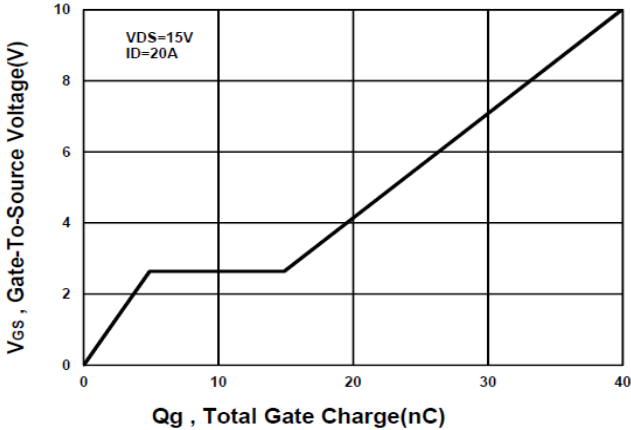
On-Resistance VS Temperature



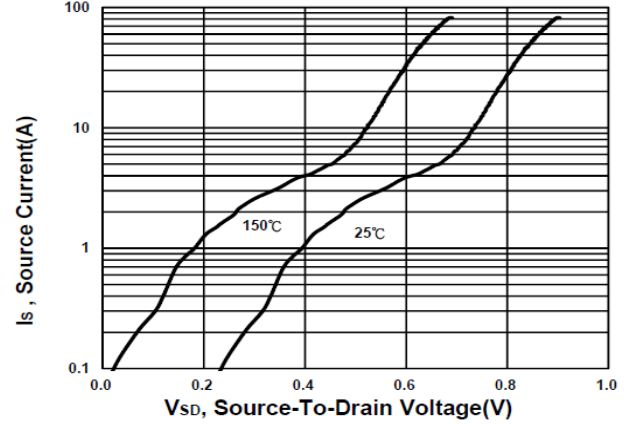
Capacitance Characteristic



Gate charge Characteristics



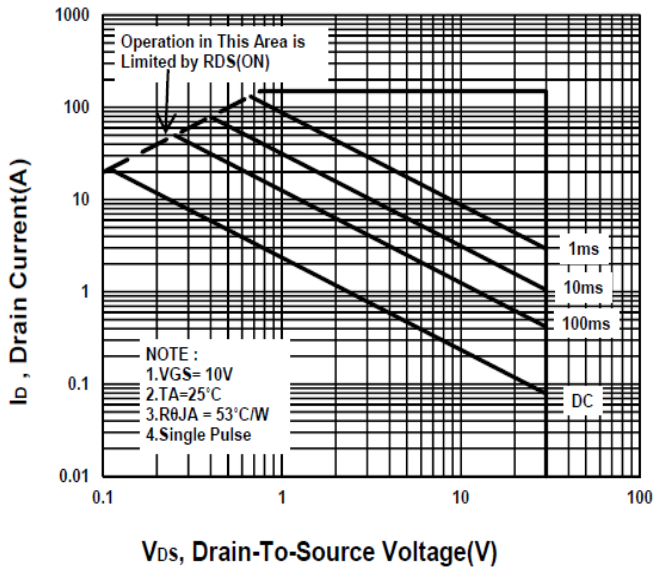
Source-Drain Diode Forward Voltage



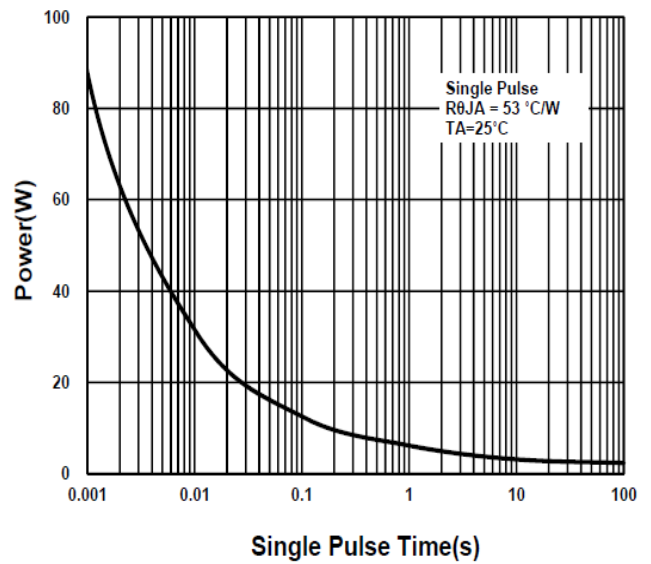
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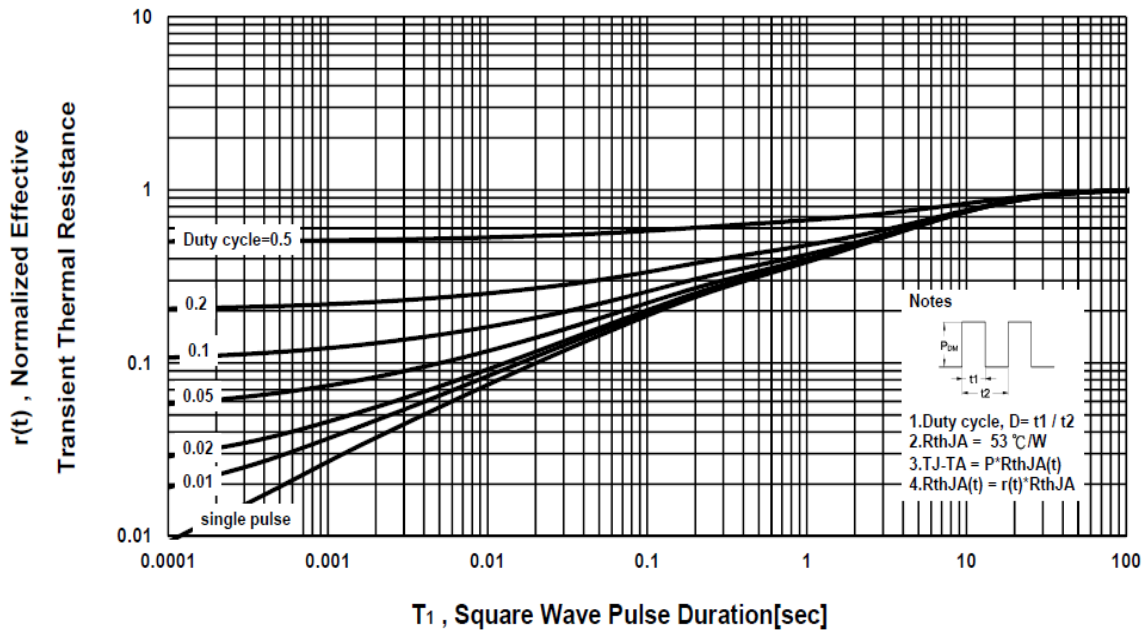
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



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PDFN 5x6P MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	4.8		5.15	J	3.33		3.78
B	5.44		5.9	K	0.9		
C	5.9		6.35	L	0.35		0.712
D	0.33		0.51	M	0°		12°
E		1.27		N	4.8		5.5
F	0.8		1.25	O	0.05		0.3
G	0.15		0.34	P	0.06		0.2
H	3.61		4.31	S	3.69		4.19
I	0.35		0.71				

