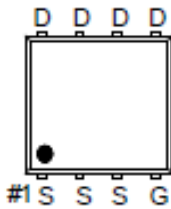


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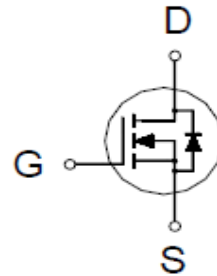
N-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
30V	20m Ω @ $V_{GS} = 10V$	25A



PDFN 3X3S



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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	± 20	
Continuous Drain Current	$T_c = 25\text{ }^\circ\text{C}$	I_D	25	A
	$T_c = 100\text{ }^\circ\text{C}$		16	
	$T_A = 25\text{ }^\circ\text{C}$		8	
	$T_A = 70\text{ }^\circ\text{C}$		6	
Pulsed Drain Current ¹		I_{DM}	60	
Avalanche Current		I_{AS}	17	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	15	mJ
Power Dissipation	$T_c = 25\text{ }^\circ\text{C}$	P_D	20	W
	$T_c = 100\text{ }^\circ\text{C}$		8	
	$T_A = 25\text{ }^\circ\text{C}$		2	
	$T_A = 70\text{ }^\circ\text{C}$		1.3	
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	$R_{\theta JA}$		60	$^\circ\text{C} / \text{W}$
Junction-to-Case	Steady-State	$R_{\theta JC}$		6	

¹Pulse width limited by maximum junction temperature.

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N-Channel Enhancement Mode MOSFET

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

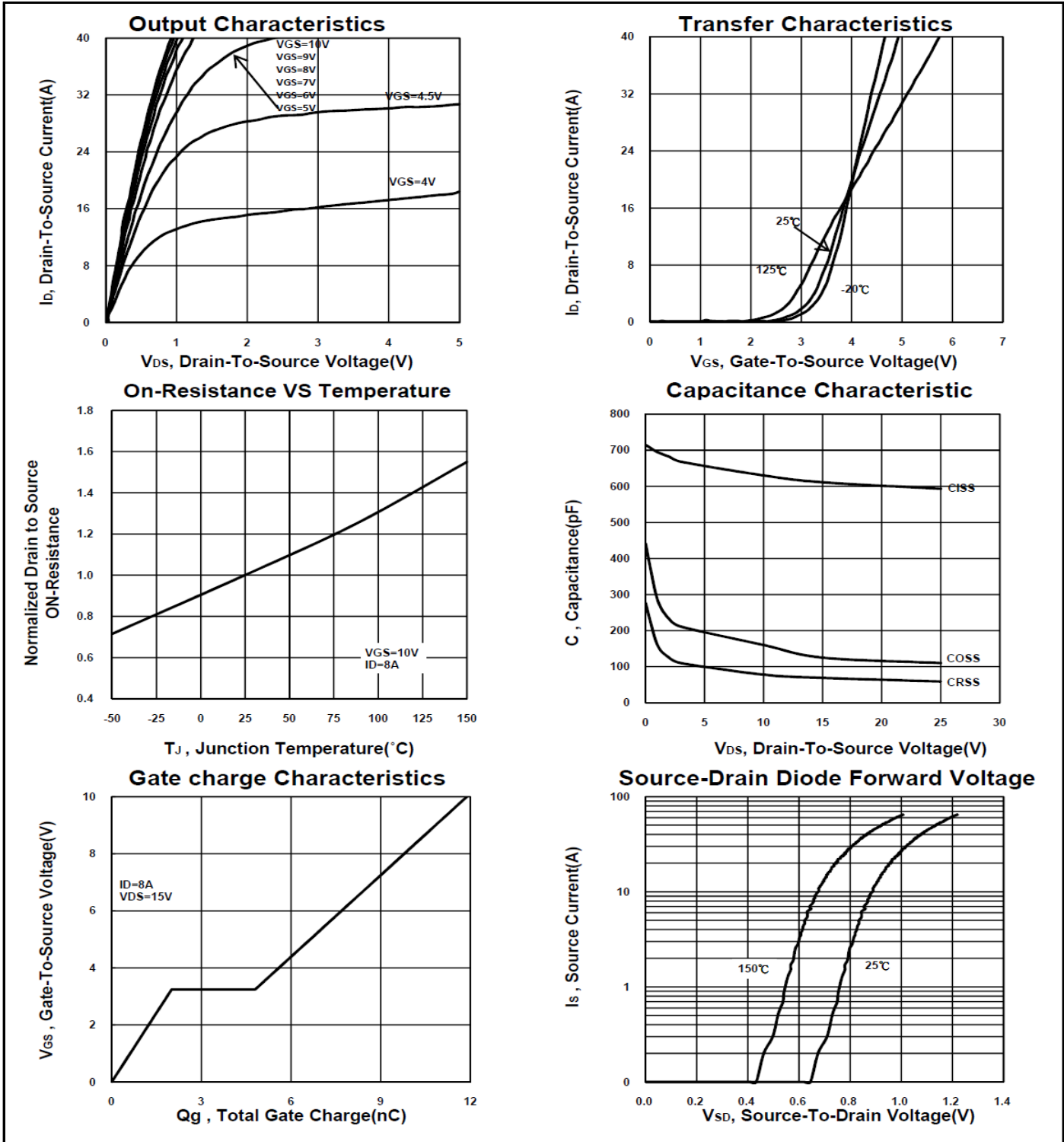
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNITS
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	30			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1	1.8	2.5	
Gate-Body Leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 24V, V _{GS} = 0V			1	μA
		V _{DS} = 20V, V _{GS} = 0V, T _J = 55 °C			10	
On-State Drain Current ¹	I _{D(ON)}	V _{DS} = 5V, V _{GS} = 10V	60			A
Drain-Source On-State Resistance ¹	R _{DS(ON)}	V _{GS} = 4.5V, I _D = 6A		28.2	31	mΩ
		V _{GS} = 10V, I _D = 8A		17.6	20	
Forward Transconductance ¹	g _{fs}	V _{DS} = 10V, I _D = 8A		16		S
DYNAMIC						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = 15V, f = 1MHz		625		pF
Output Capacitance	C _{oss}			130		
Reverse Transfer Capacitance	C _{rss}			73		
Gate Resistance	R _g	V _{GS} = 0V, V _{DS} = 0V, f = 1MHz		2.6		Ω
Total Gate Charge ²	Q _g (V _{GS} =10V)	V _{DS} = 0.5V _{(BR)DSS} , I _D = 8A		12.1		nC
	Q _g (V _{GS} =4.5V)			6.3		
Gate-Source Charge ²	Q _{gs}			2.1		
Gate-Drain Charge ²	Q _{gd}			3.1		
Turn-On Delay Time ²	t _{d(on)}		V _{DD} = 15V, I _D ≅ 8A, V _{GEN} = 10V, R _G = 3Ω		12	
Rise Time ²	t _r			12		
Turn-Off Delay Time ²	t _{d(off)}			20		
Fall Time ²	t _f			13		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current	I _S				25	A
Forward Voltage ¹	V _{SD}	I _F = 8A, V _{GS} = 0V			1	V
Reverse Recovery Time	t _{rr}	I _F = 8A, dI _F /dt = 100A / μS		30		nS
Reverse Recovery Charge	Q _{rr}			16		nC

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

²Independent of operating temperature.

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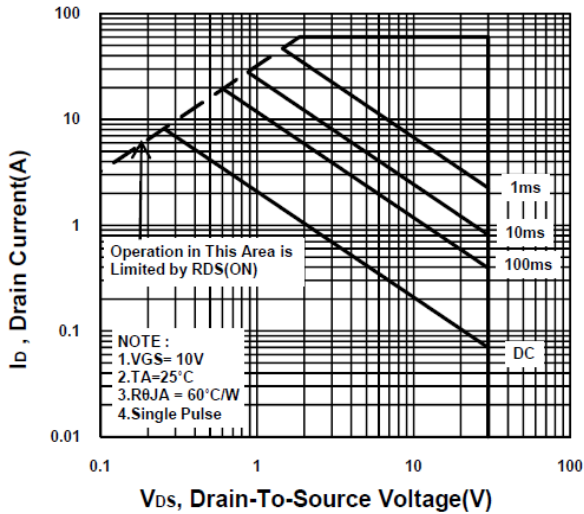
N-Channel Enhancement Mode MOSFET



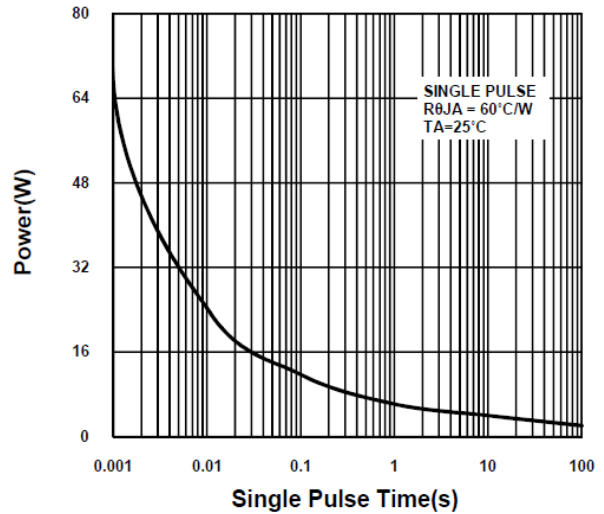
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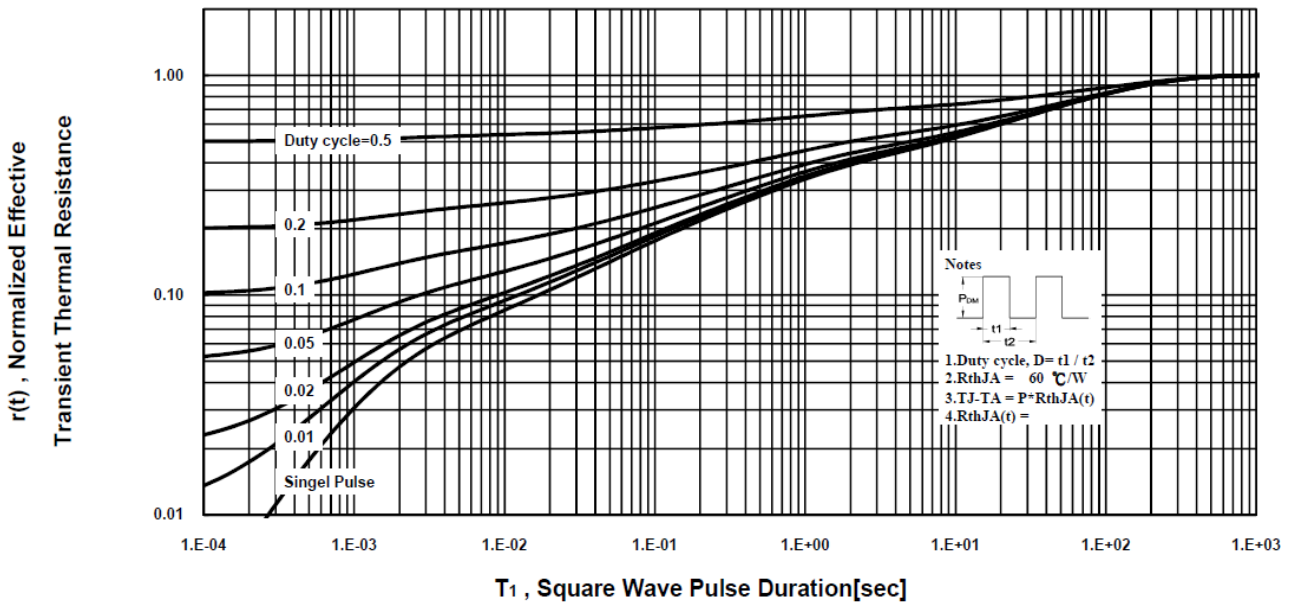
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



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Package Dimension

PDFN 3x3S MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	2.9	3.0	3.1	I		0.20	
B	2.35	2.4	2.55	J	0.27	0.35	0.4
C	2.9	3.0	3.1	K		0.45	
D	0.32	0.4	0.45	L	0.7	0.8	0.9
E	2.0	2.1	2.2				
F	0.32	0.42	0.47				
G		0.65					
H	0.27	0.35	0.525				

