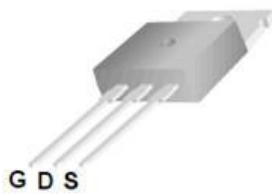


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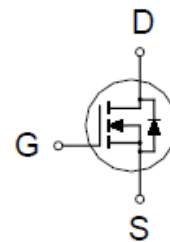
N-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
30V	20m Ω @ $V_{GS} = 10V$	39A



TO-220



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	39	A
	$T_C = 100\text{ }^\circ\text{C}$		25	
Pulsed Drain Current ¹		I_{DM}	120	
Avalanche Current		I_{AS}	21	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	22	mJ
Power Dissipation	$T_C = 25\text{ }^\circ\text{C}$	P_D	50	W
	$T_C = 100\text{ }^\circ\text{C}$		20	
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-Case	$R_{\theta JC}$		2.5	$^\circ\text{C} / \text{W}$
Junction-to-Ambient	$R_{\theta JA}$		50	

¹Pulse width limited by maximum junction temperature.

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

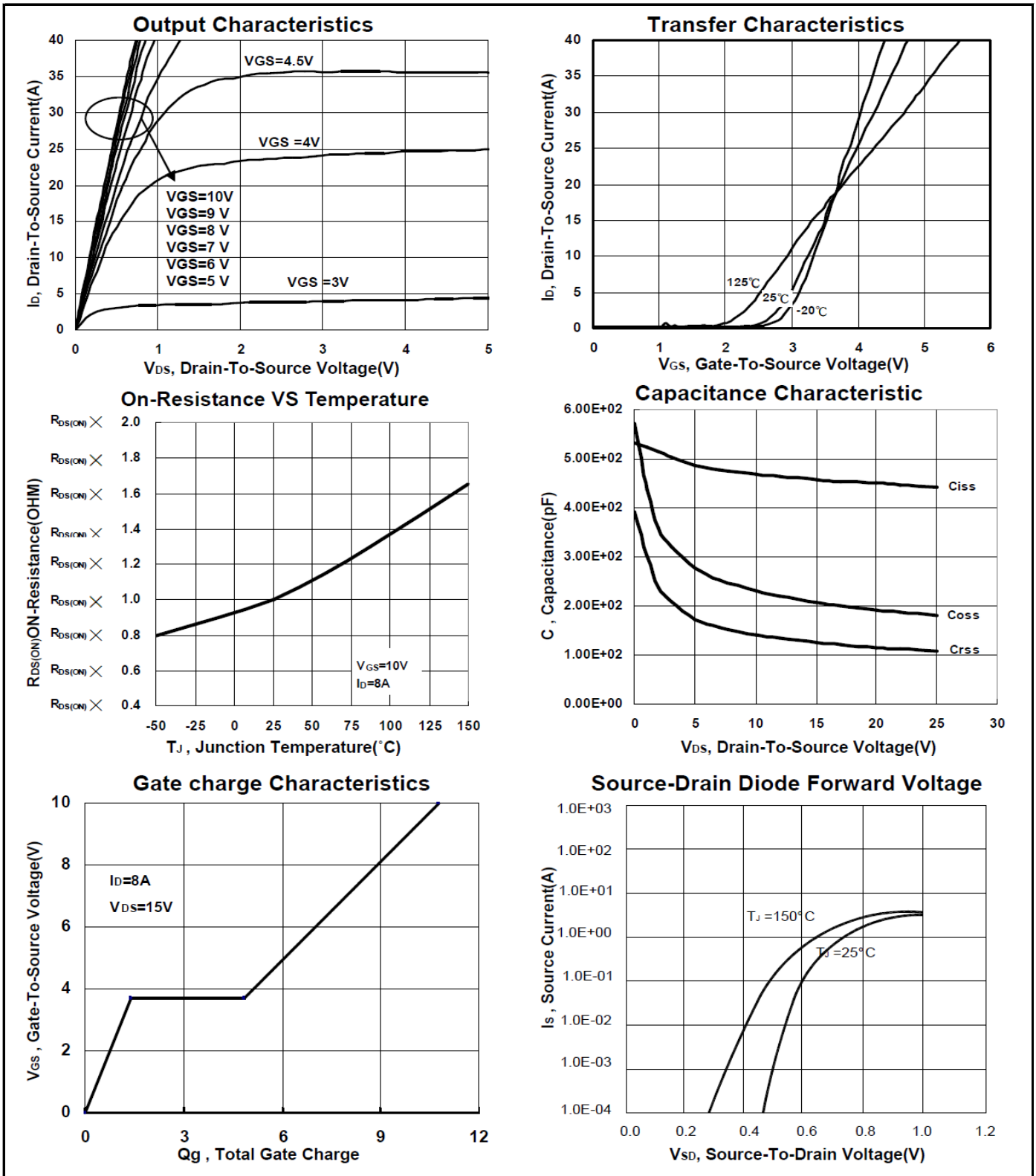
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNITS
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	30			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1	1.6	2.5	V
Gate-Body Leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±20V			±250	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 24V, V _{GS} = 0V			1	μA
On-State Drain Current ¹	I _{D(ON)}	V _{DS} = 5V, V _{GS} = 10V	120			A
Drain-Source On-State Resistance ¹	R _{DS(ON)}	V _{GS} = 10V, I _D = 8A		17	20	mΩ
		V _{GS} = 4.5V, I _D = 6A		28	32	
Forward Transconductance ¹	g _{fs}	V _{DS} = 5V, I _D = 8A		17		S
DYNAMIC						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = 15V, f = 1MHz		474		pF
Output Capacitance	C _{oss}			184		
Reverse Transfer Capacitance	C _{rss}			115		
Gate Resistance	R _g	V _{GS} = 0V, V _{DS} = 0V, f = 1MHz		2.7		Ω
Total Gate Charge ²	Q _g (V _{GS} =10V)	V _{DS} = 0.5V _{(BR)DSS} , I _D = 8A		11		nC
	Q _g (V _{GS} =4.5V)			4.7		
Gate-Source Charge ²	Q _{gs}			1.5		
Gate-Drain Charge ²	Q _{gd}			3.7		
Turn-On Delay Time ²	t _{d(on)}		V _{DD} = 15V, I _D ≅ 8A, V _{GEN} = 10V, R _G = 6Ω		11	
Rise Time ²	t _r			17	26	
Turn-Off Delay Time ²	t _{d(off)}			37	54	
Fall Time ²	t _f			20	30	
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current	I _S				33	A
Forward Voltage ¹	V _{SD}	I _F = 8A, V _{GS} = 0V			1	V
Reverse Recovery Time	t _{rr}	I _F = 8 A, dI _F / dt = 100 A/μs		17		nS
Reverse Recovery Charge	Q _{rr}			8		nC

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

²Independent of operating temperature.

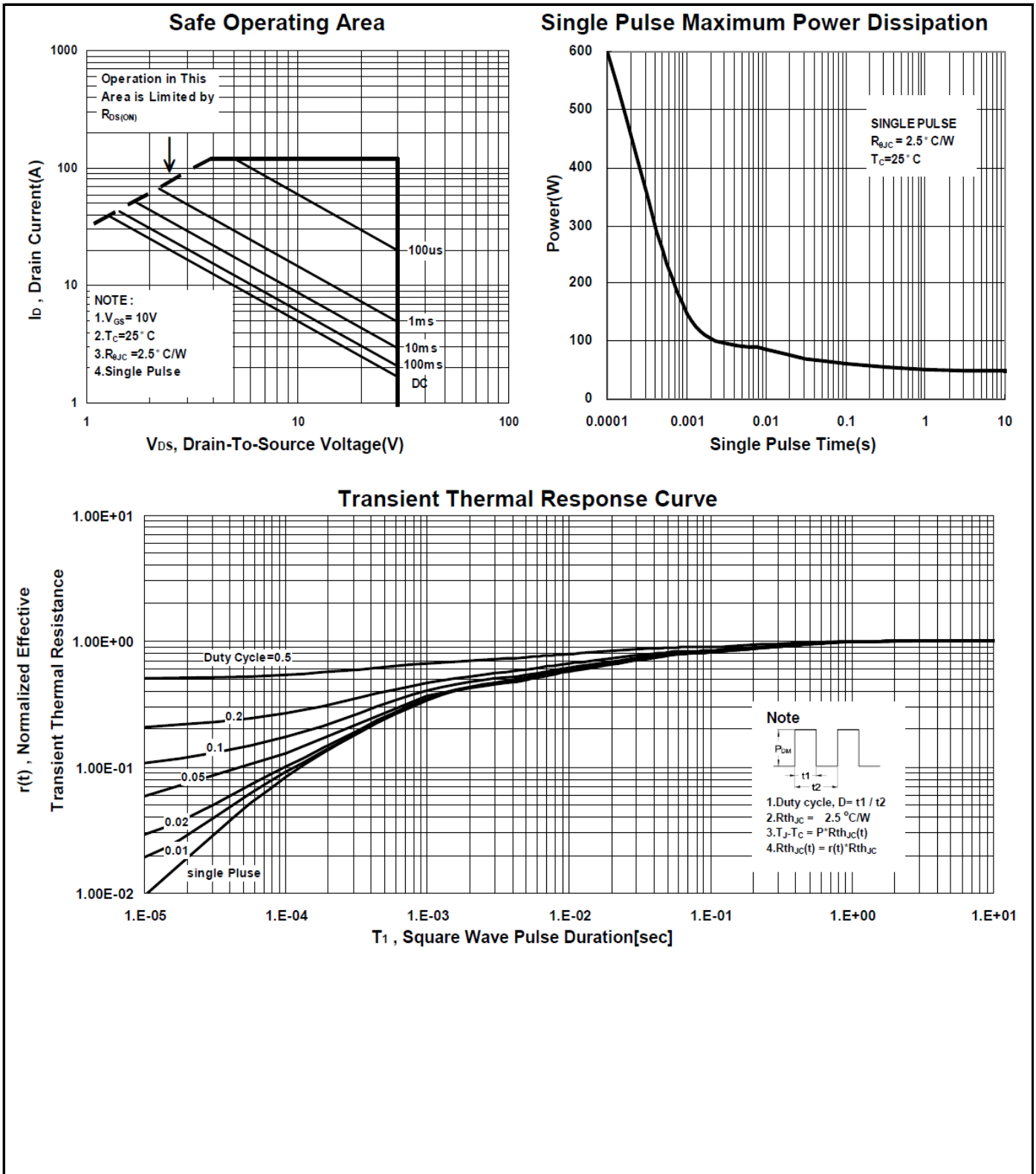
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Package Dimension

TO-220 (3-Lead) MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	9.652	10.16	11.5	H	2.04	2.54	3.04
B	2.54	2.79	3.048	I	1.15	1.52	1.778
C	17.3		22.86	J	3.556	4.57	4.826
D	26.924	29.03	31.242	K	0.508	1.3	1.45
E	14.224	15.45	16.510	L	1.89	2.69	3.09
F	8.382	9.20	9.40	M	0.34	0.5	0.6
G	0.381	0.81	1.016	N			

