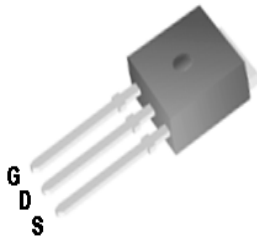


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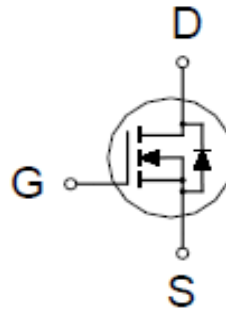
N-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
650V	2.6Ω @ $V_{GS} = 10V$	4A



TO-251



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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	650	V
Gate-Source Voltage		V_{GS}	±30	V
Continuous Drain Current ²	$T_C = 25\text{ °C}$	I_D	4	A
	$T_C = 100\text{ °C}$		2.5	
Pulsed Drain Current ^{1, 2}		I_{DM}	15	
Avalanche Current ³		I_{AS}	2	
Avalanche Energy ³		E_{AS}	20	mJ
Power Dissipation	$T_C = 25\text{ °C}$	P_D	54	W
	$T_C = 100\text{ °C}$		21	
Operating Junction & Storage Temperature Range		T_j, T_{stg}	-55 to 150	°C

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Case	$R_{\theta JC}$		2.3	°C / W
Junction-to-Ambient	$R_{\theta JA}$		62.5	

¹Pulse width limited by maximum junction temperature.

²Limited only by maximum temperature allowed.

³ $V_{DD} = 50V$, $L = 10mH$, starting $T_J = 25\text{ °C}$.

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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	650			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	2.5	3.3	4.5	V
Gate-Body Leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±30V			±100	nA
Gate Voltage Drain Current	I _{DSS}	V _{DS} = 650V, V _{GS} = 0V, T _C = 25 °C			1	μA
		V _{DS} = 520V, V _{GS} = 0V, T _J = 100°C			10	
Drain-Source On-State Resistance ¹	R _{DS(ON)}	V _{GS} = 10V, I _D = 2A		2.1	2.6	Ω
Forward Transconductance ¹	g _{fs}	V _{DS} = 15V, I _D = 2A		2.5		S
DYNAMIC						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = 25V, f = 1MHz		512		pF
Output Capacitance	C _{oss}			52		
Reverse Transfer Capacitance	C _{rss}			12		
Total Gate Charge ²	Q _g	V _{DD} = 520V, I _D = 4A, V _{GS} = 10V		13		nC
Gate-Source Charge ²	Q _{gs}			3.8		
Gate-Drain Charge ²	Q _{gd}			4.3		
Turn-On Delay Time ²	t _{d(on)}	V _{GS} = 0V, V _{DD} = 350V, I _D = 4A, R _G = 25Ω		27		nS
Rise Time ²	t _r			59		
Turn-Off Delay Time ²	t _{d(off)}			90		
Fall Time ²	t _f			74		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current ³	I _S				4	A
Forward Voltage ¹	V _{SD}	I _F = 4A, V _{GS} = 0V			1	V
Reverse Recovery Time	t _{rr}	I _F = 4A, di _F /dt = 100A / μS		374		nS
Reverse Recovery Charge	Q _{rr}				2.1	

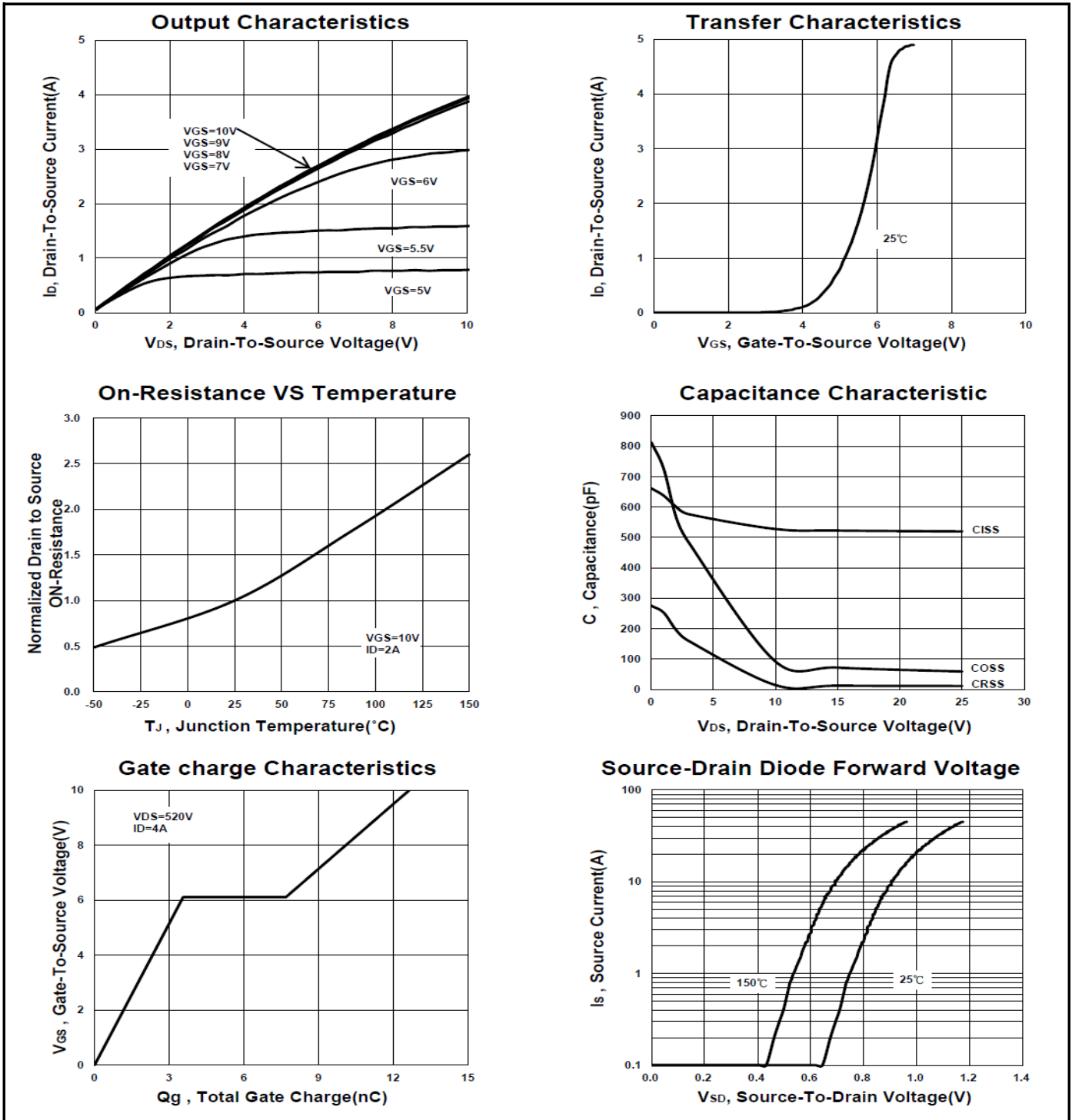
¹Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

²Independent of operating temperature.

³Pulse width limited by maximum junction temperature.

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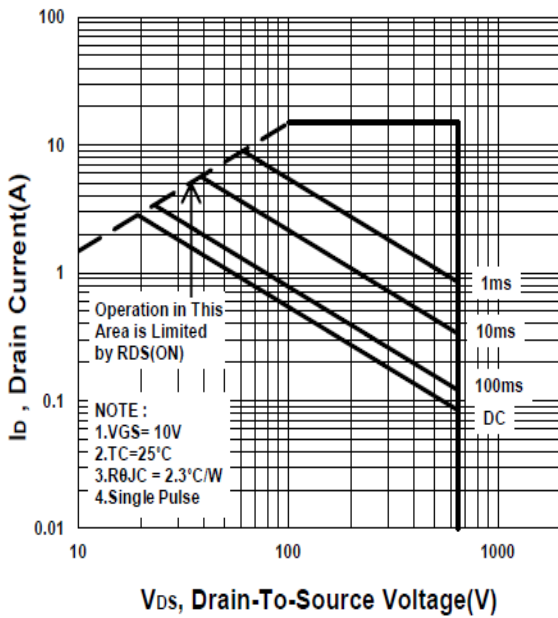
N-Channel Enhancement Mode MOSFET



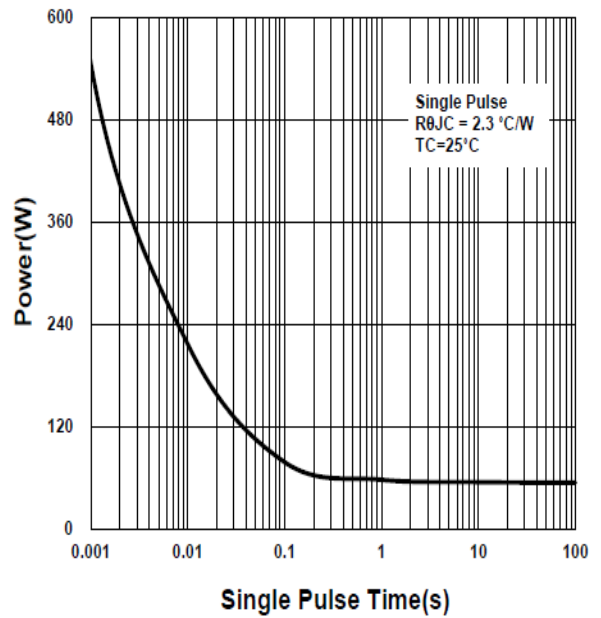
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N-Channel Enhancement Mode MOSFET

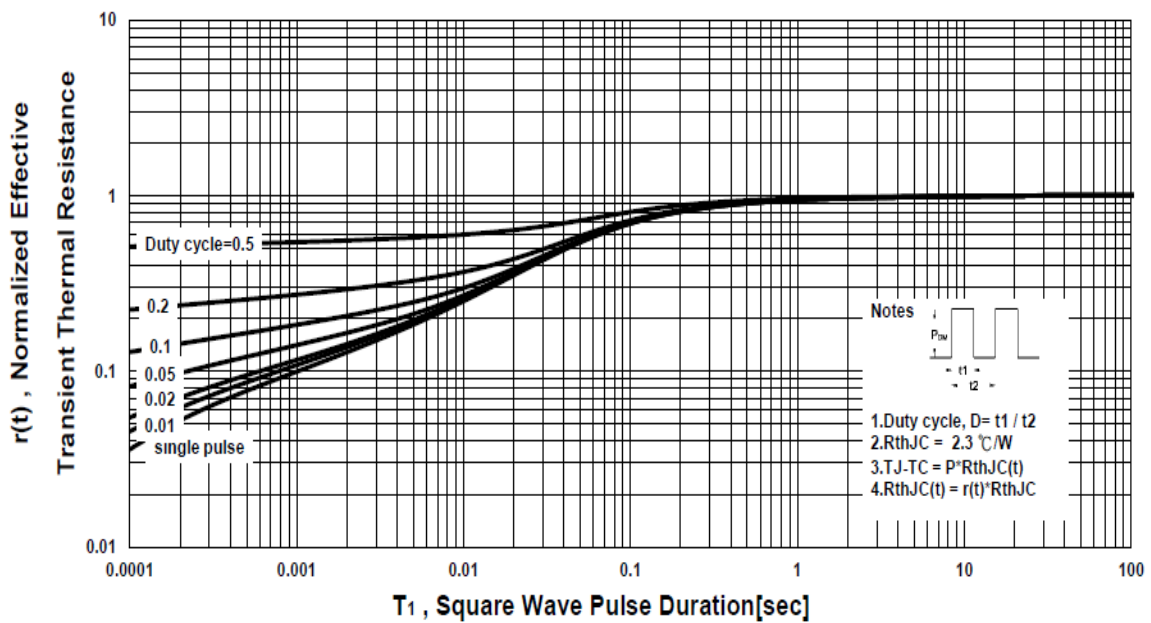
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



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Package Dimension

TO-251 MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	14	15	17.14	H	0.89		1.7
B	2.1	2.3	2.5	I	6.3		6.8
C	0.4	0.5	0.6	J	4.8		5.5
D	0.35	0.5	0.65	K	0.5	0.84	1.14
E	0.9	1.1	1.5	L	0.4	0.76	0.912
F	7		9.65	M		2.3	
G	5.3		6.22	N	1.4	2.16	2.23

