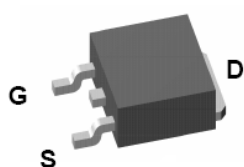


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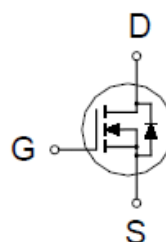
N-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
30V	$5.8m\Omega$ @ $V_{GS} = 10V$	70A



TO-252



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	70	A
	$T_C = 100\text{ }^{\circ}\text{C}$		44	
Pulsed Drain Current ¹		I_{DM}	180	
Avalanche Current		I_{AS}	49	
Avalanche Energy	$L = 0.1mH$	E_{AS}	120	mJ
Power Dissipation	$T_C = 25\text{ }^{\circ}\text{C}$	P_D	51	W
	$T_C = 100\text{ }^{\circ}\text{C}$		20	
Operating Junction & Storage Temperature Range		T_J, T_{STG}	-55 to 150	$^{\circ}\text{C}$
Lead Temperature (¹ / ₁₆ " from case for 10 sec.)		T_L	275	$^{\circ}\text{C}$

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Case	$R_{\theta JC}$		2.45	$^{\circ}\text{C} / \text{W}$
Junction-to-Ambient	$R_{\theta JA}$		62.5	

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			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	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.0	1.6	3.0	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 250	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 24V, V_{GS} = 0V$			1	μA
		$V_{DS} = 20V, V_{GS} = 0V, T_J = 125^\circ C$			10	
On-State Drain Current ¹	$I_{D(ON)}$	$V_{DS} = 10V, V_{GS} = 10V$	70			A
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = 4.5V, I_D = 30A$		6.2	9.0	mΩ
		$V_{GS} = 10V, I_D = 30A$		4.6	5.8	
Forward Transconductance ¹	g_{fs}	$V_{DS} = 5V, I_D = 20A$		90		S
DYNAMIC						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 15V, f = 1MHz$		2110		pF
Output Capacitance	C_{oss}			469		
Reverse Transfer Capacitance	C_{rss}			336		
Gate Resistance	R_g	$V_{GS} = 0V, V_{DS} = 0V, f = 1MHz$		1.4		Ω
Total Gate Charge ²	Q_g	$V_{DS} = 15V, V_{GS} = 10V, I_D = 25A$		44		nC
Gate-Source Charge ²	Q_{gs}			8		
Gate-Drain Charge ²	Q_{gd}			9		
Turn-On Delay Time ²	$t_{d(on)}$	$V_{DD} = 15V,$ $I_D \cong 25A, V_{GS} = 10V, R_{GEN} = 25\Omega$		23		nS
Rise Time ²	t_r			36		
Turn-Off Delay Time ²	$t_{d(off)}$			88		
Fall Time ²	t_f			35		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_J = 25^\circ C$)						
Continuous Current	I_S				39	A
Forward Voltage ¹	V_{SD}	$I_F = I_S, V_{GS} = 0V$			1.3	V
Reverse Recovery Time	t_{rr}	$V_{GS} = 0V, I_S = 30A,$ $di_F/dt = 100A / \mu S$		55		nS
Reverse Recovery Charge	Q_{rr}			25		nC

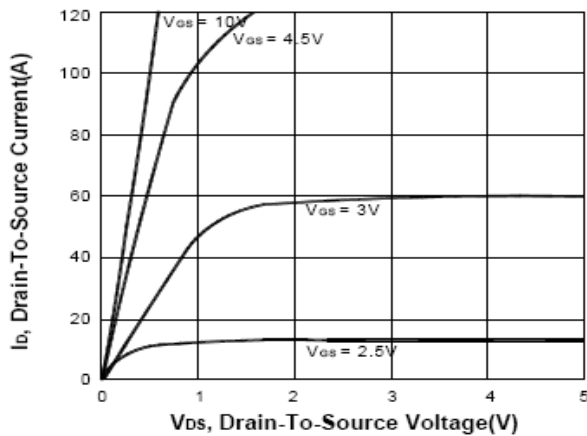
¹Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

²Independent of operating temperature.

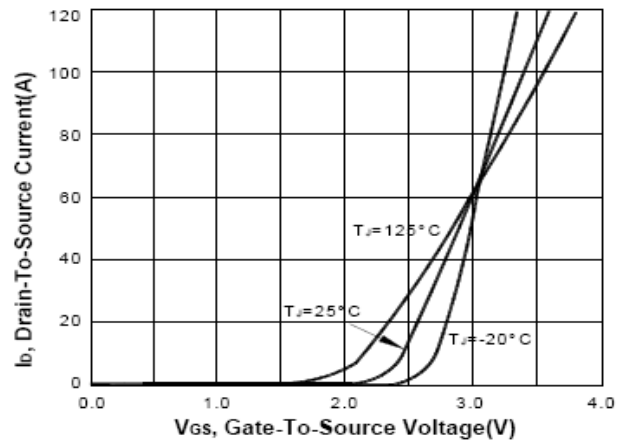
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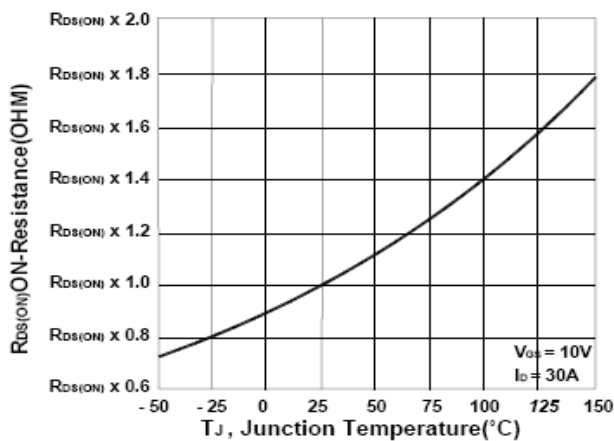
Output Characteristics



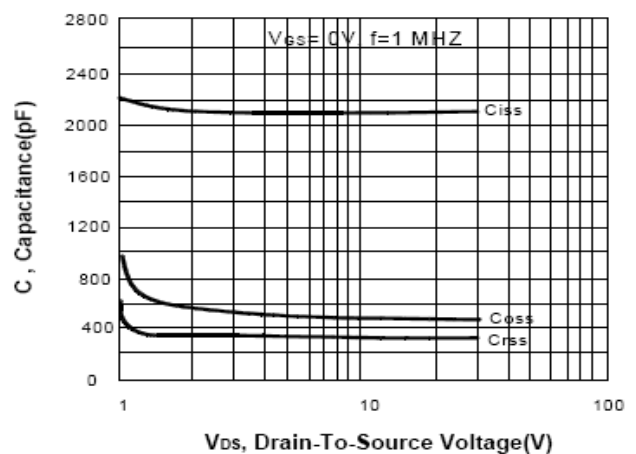
Transfer Characteristics



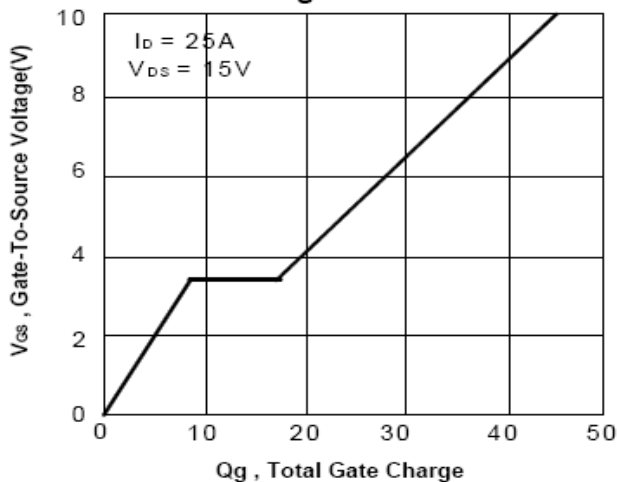
On-Resistance VS Temperature



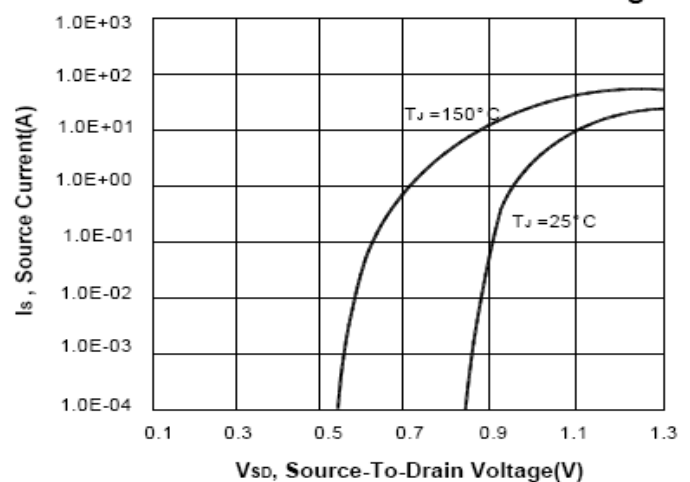
Capacitance Characteristic



Gate charge Characteristics



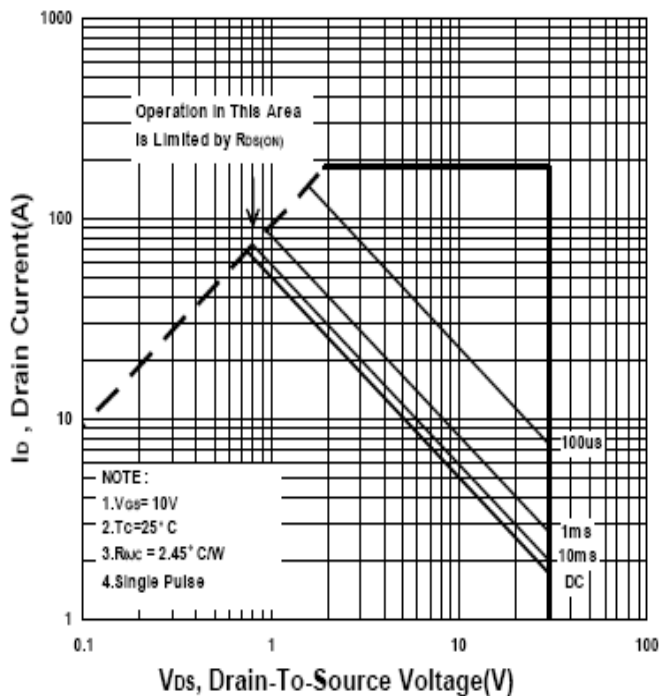
Source-Drain Diode Forward Voltage



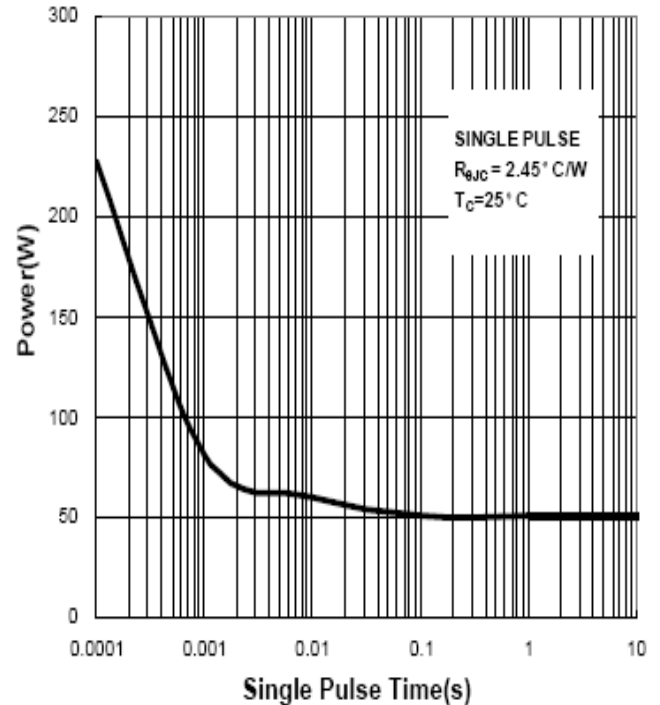
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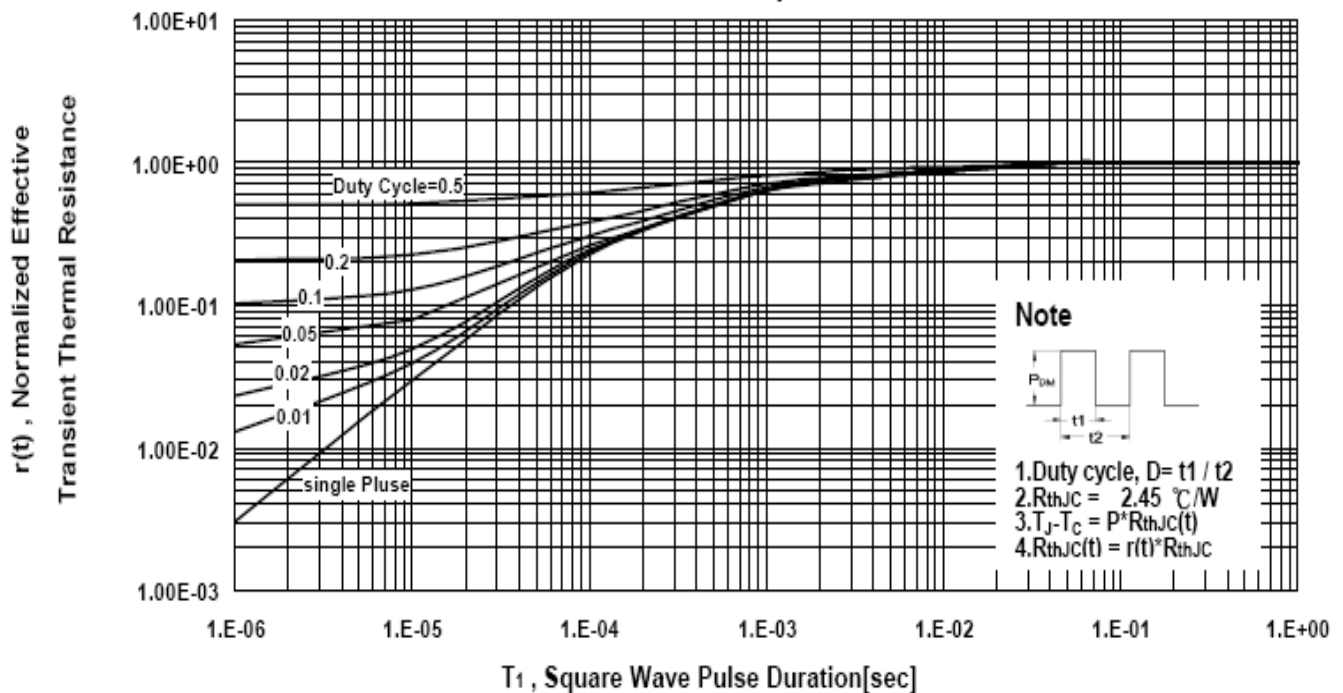
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



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Package Dimension

TO-252 (DPAK) MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	8.9	10	10.41	J	4.8		5.64
B	2.1	2.2	2.5	K	0.15		1.49
C	0.4	0.5	0.61	L	0.4	0.76	0.91
D	0.82	1.2	1.5	M	4.2	4.58	5
E	0.35	0.5	0.65	S	4.57	5.1	5.52
F	0		0.2	T	3.81	4.75	5.24
G	5.3	6.1	6.3	U	1.4		1.78
H	0.5		1.7	V	0.55	1.25	1.7
I	6.3	6.5	6.8				

