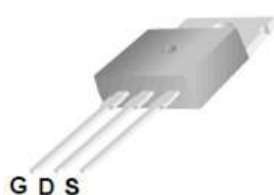


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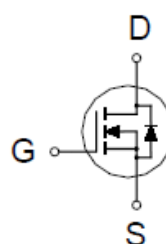
N-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
60V	$30m\Omega$ @ $V_{GS} = 10V$	34A



TO-220



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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current	$T_C = 25\text{ }^{\circ}\text{C}$	I_D	34	A
	$T_C = 100\text{ }^{\circ}\text{C}$		21	
Pulsed Drain Current ¹		I_{DM}	110	
Avalanche Current		I_{AS}	29	
Avalanche Energy	$L = 0.1mH$	E_{AS}	41	mJ
Power Dissipation	$T_C = 25\text{ }^{\circ}\text{C}$	P_D	58	W
	$T_C = 100\text{ }^{\circ}\text{C}$		23	
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-Case	$R_{\theta JC}$		2.15	$^{\circ}\text{C} / \text{W}$
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)

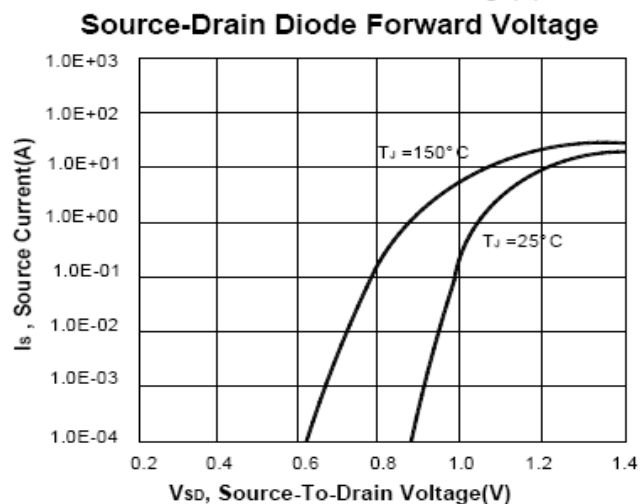
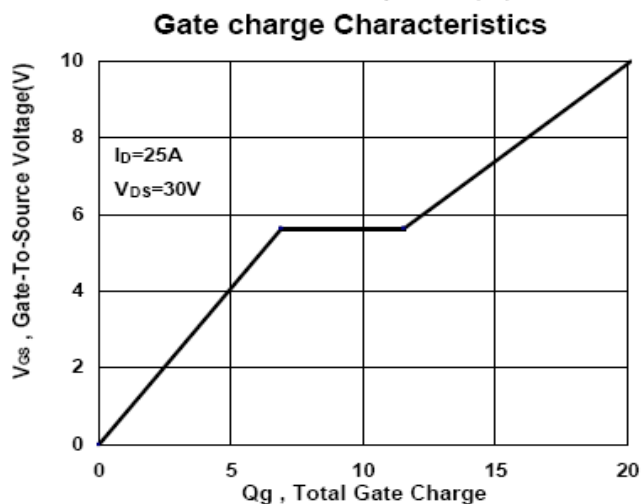
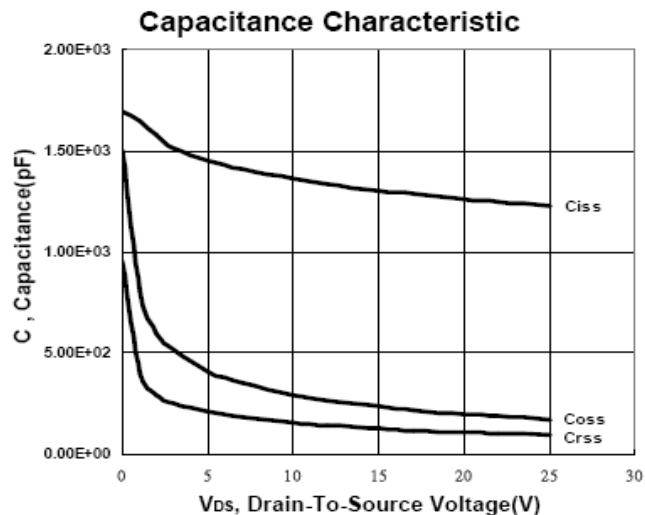
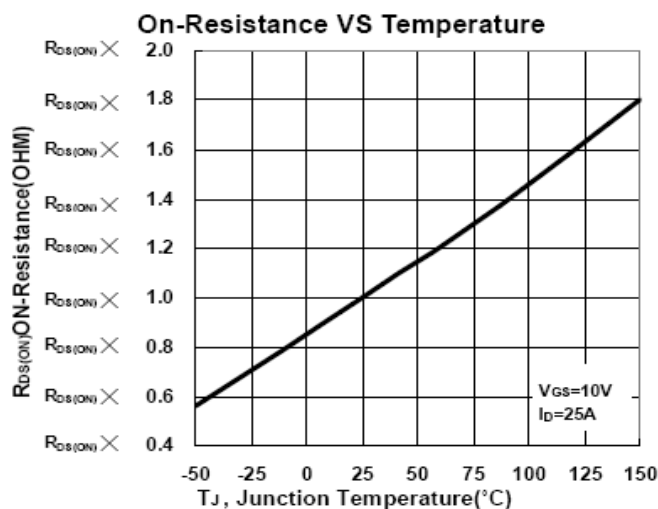
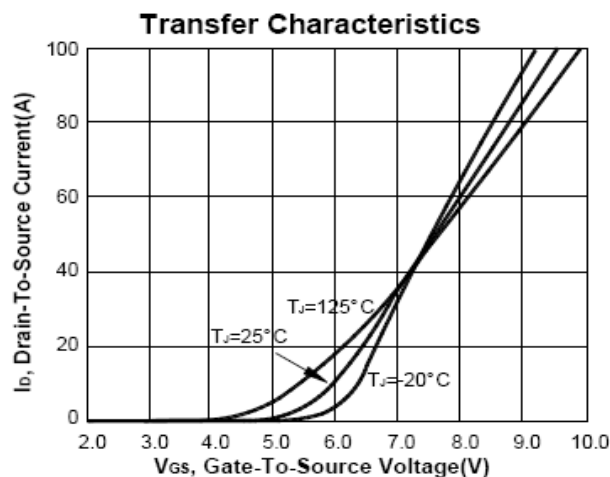
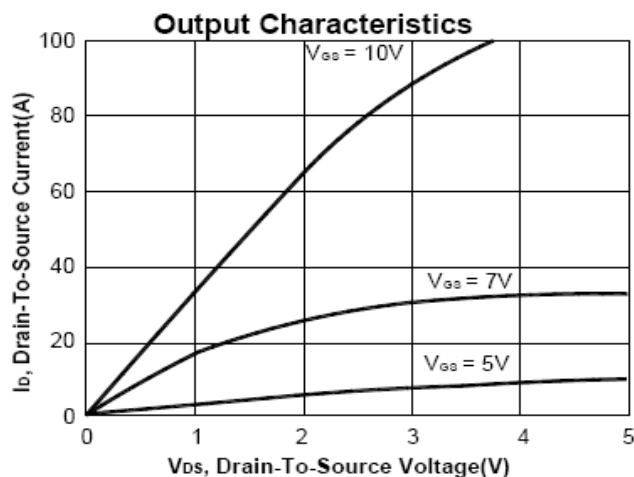
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	60			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.8	2.4	4.0	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 250	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 48V, V_{GS} = 0V$			1	μA
		$V_{DS} = 40V, V_{GS} = 0V, T_J = 125^\circ C$			10	
On-State Drain Current ¹	$I_{D(ON)}$	$V_{DS} = 5V, V_{GS} = 10V$	110			A
Drain-Source On-State	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 25A$		26	30	mΩ
Forward Transconductance ¹	g_{fs}	$V_{DS} = 5V, I_D = 25A$		25		S
DYNAMIC						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 25V, f = 1MHz$		1240		pF
Output Capacitance	C_{oss}			173		
Reverse Transfer Capacitance	C_{rss}			97		
Gate Resistance	R_g	$V_{GS} = 0V, V_{DS} = 0V, f = 1MHz$		1.7		Ω
Total Gate Charge ²	Q_g	$V_{DS} = 30V, V_{GS} = 10V, I_D = 25A$		21		nC
Gate-Source Charge ²	Q_{gs}			7		
Gate-Drain Charge ²	Q_{gd}			5		
Turn-On Delay Time ²	$t_{d(on)}$	$V_{DS} = 0.5V_{(BR)DSS}, R_L = 1.5\Omega$ $I_D \cong 20A, V_{GS} = 10V, R_G = 5.6\Omega$		10		nS
Rise Time ²	t_r			145		
Turn-Off Delay Time ²	$t_{d(off)}$			28		
Fall Time ²	t_f			77		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_J = 25^\circ C$)						
Continuous Current	I_S				34	A
Forward Voltage ¹	V_{SD}	$I_F = 25A, V_{GS} = 0V$			1.3	V
Reverse Recovery Time	t_{rr}	$I_F = I_S, dI_F/dt = 100A / \mu S$		40		nS
Reverse Recovery Charge	Q_{rr}			48		nC

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

²Independent of operating temperature.

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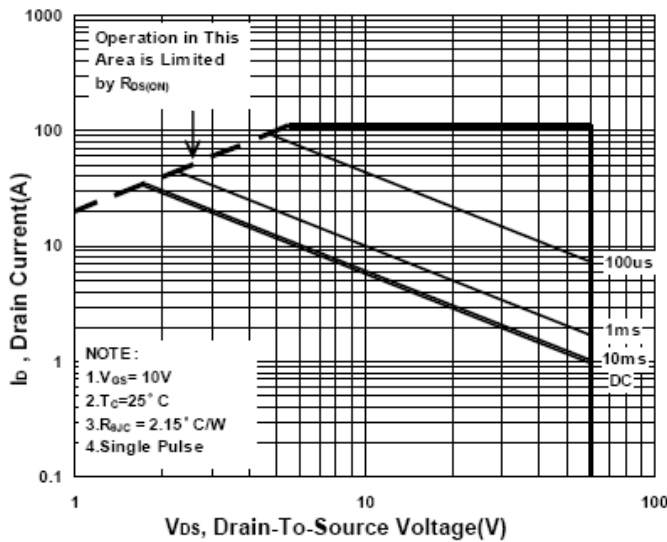
N-Channel Enhancement Mode MOSFET



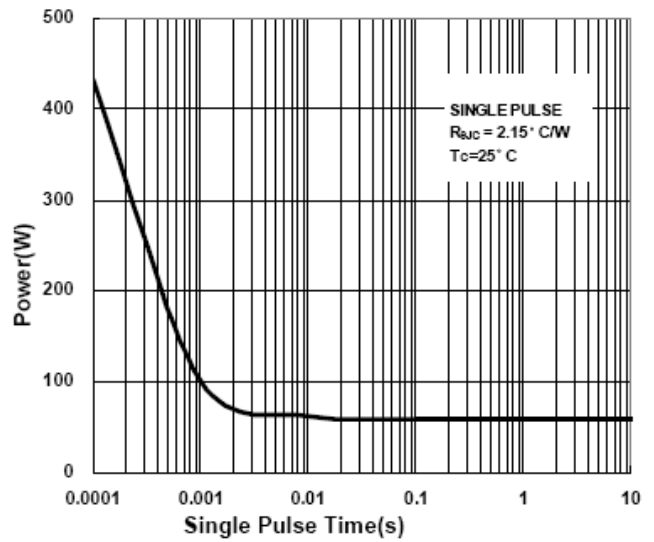
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N-Channel Enhancement Mode MOSFET

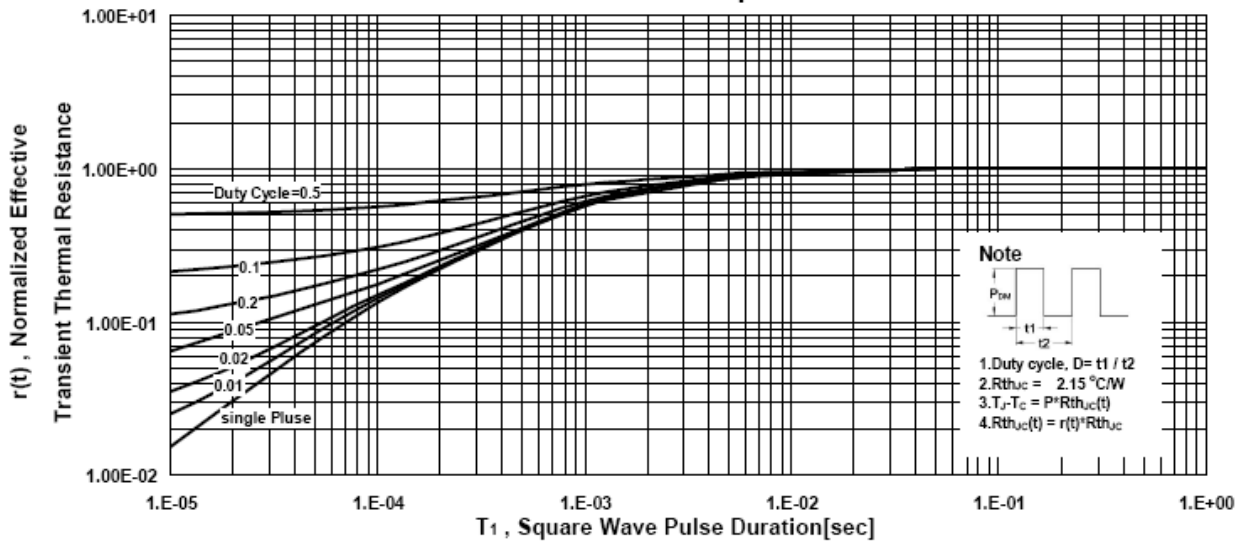
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



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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			

