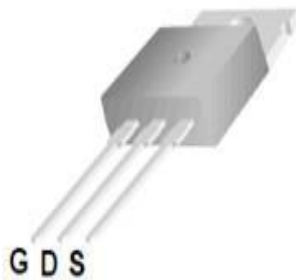


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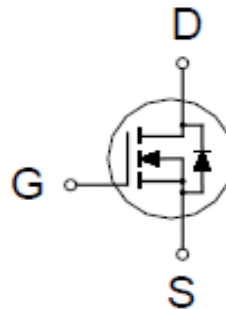
N-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

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



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}	650	V
Gate-Source Voltage	V_{GS}	± 30	V
Continuous Drain Current	I_D	$T_C = 25\text{ }^\circ\text{C}$	4
		$T_C = 100\text{ }^\circ\text{C}$	2.5
Pulsed Drain Current ¹	I_{DM}	15	A
Avalanche Current ²	I_{AS}	2	
Avalanche Energy ²	E_{AS}	20	mJ
Power Dissipation	P_D	$T_C = 25\text{ }^\circ\text{C}$	71
		$T_C = 100\text{ }^\circ\text{C}$	28
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	$R_{\theta JC}$		1.75	$^\circ\text{C} / \text{W}$

¹ Pulse width limited by maximum junction temperature.

² $V_{DD} = 50V$, $L = 10\text{mH}$, Starting $T_j = 25\text{ }^\circ\text{C}$.

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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	650			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	2.5	3.3	4.5	
Gate-Body Leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±30V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 650V, V _{GS} = 0V			1	μA
		V _{DS} = 520V, V _{GS} = 0V, T _J = 125°C			10	
Drain-Source On-State Resistance ¹	R _{DS(ON)}	V _{GS} = 10V, I _D = 2A		2.1	2.6	mΩ
Forward Transconductance ¹	g _{fs}	V _{DS} = 10V, I _D = 2A		2.7		S
DYNAMIC						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = 25V, f = 1MHz		527		pF
Output Capacitance	C _{oss}			49		
Reverse Transfer Capacitance	C _{rss}			12		
Total Gate Charge ²	Q _g	V _{GS} = 10V, V _{DS} = 520V, I _D = 4A		11		nC
Gate-Source Charge ²	Q _{gs}			3.3		
Gate-Drain Charge ²	Q _{gd}			4.4		
Turn-On Delay Time ²	t _{d(on)}	V _{DD} = 325V, I _D ≅ 4A, V _{GS} = 10V, R _{GS} = 6Ω		28		nS
Rise Time ²	t _r			60		
Turn-Off Delay Time ²	t _{d(off)}			91		
Fall Time ²	t _f			75		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current	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		367		nS
Reverse Recovery Charge	Q _{rr}				2.1	

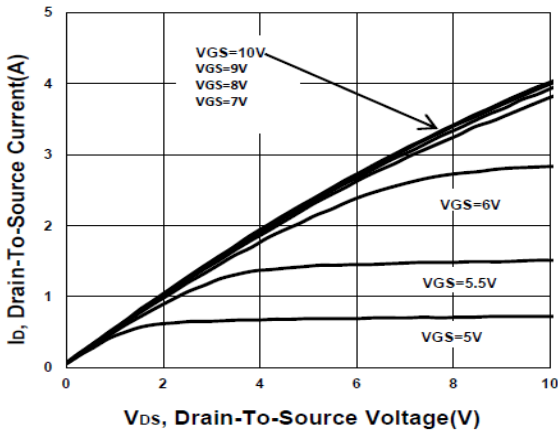
¹Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

²Independent of operating temperature.

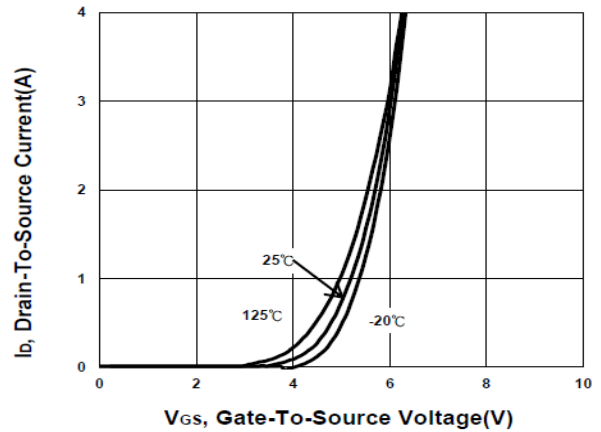
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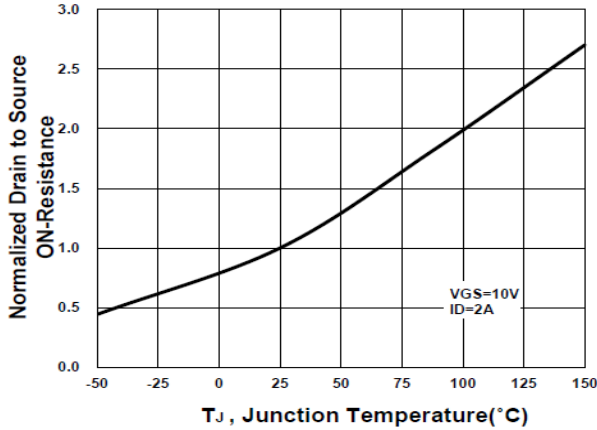
Output Characteristics



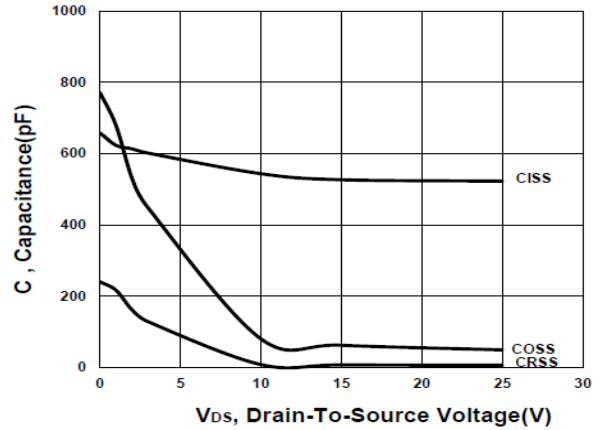
Transfer Characteristics



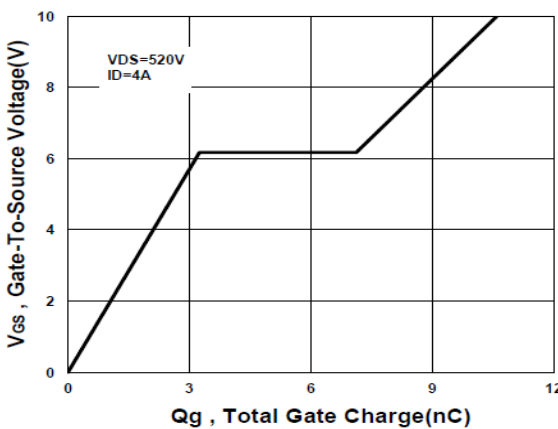
On-Resistance VS Temperature



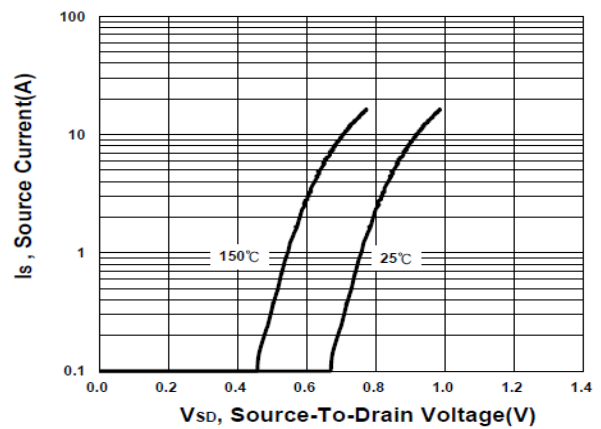
Capacitance Characteristic



Gate charge Characteristics



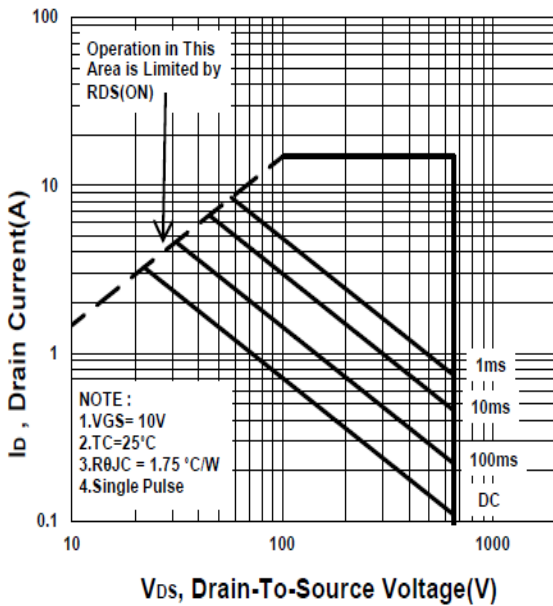
Source-Drain Diode Forward Voltage



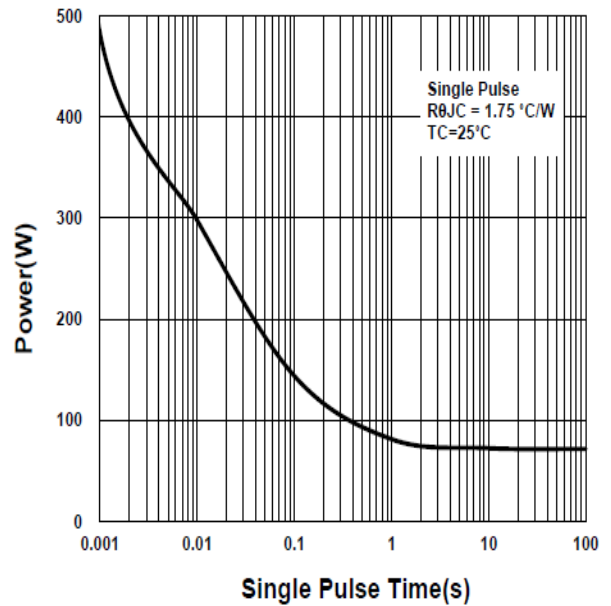
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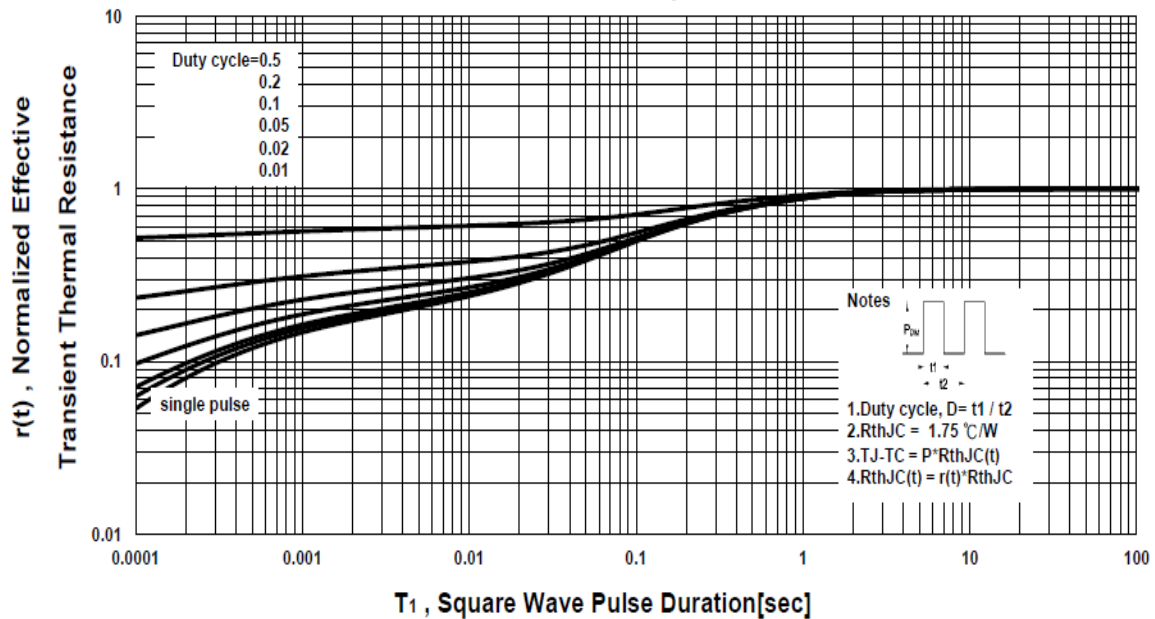
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



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Package Dimension

TO-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			

