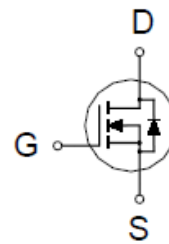
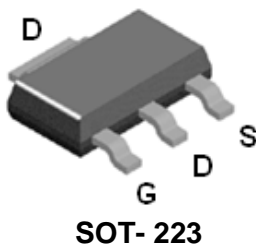


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N-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
25V	72m Ω @ $V_{GS} = 10V$	6A



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	$T_A = 25\text{ }^\circ\text{C}$	I_D	6	A
	$T_A = 70\text{ }^\circ\text{C}$		3.3	
Pulsed Drain Current ²		I_{DM}	21	
Avalanche Current		I_{AS}	12	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	7.5	mJ
Power Dissipation	$T_A = 25\text{ }^\circ\text{C}$	P_D	3	W
	$T_A = 70\text{ }^\circ\text{C}$		1.1	
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	$R_{\theta Jc}$		12	$^\circ\text{C} / \text{W}$
Junction-to-Ambient	$R_{\theta JA}$		42	

¹Pulse width limited by maximum junction temperature.

²Limited by package.

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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 = 250μA	25			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	0.8	1.5	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} = 20V, V _{GS} = 0V			1	μA
		V _{DS} = 20V, V _{GS} = 0V, T _J = 125 °C			10	
On-State Drain Current ¹	I _{D(ON)}	V _{DS} = 5V, V _{GS} = 10V	21			A
Drain-Source On-State Resistance ¹	R _{DS(ON)}	V _{GS} = 4.5V, I _D = 3A		53	96	mΩ
		V _{GS} = 10V, I _D = 6A		35	72	
Forward Transconductance ¹	g _{fs}	V _{DS} = 5V, I _D = 6A		9		S
DYNAMIC						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = 15V, f = 1MHz		220		pF
Output Capacitance	C _{oss}			114		
Reverse Transfer Capacitance	C _{rss}			72		
Total Gate Charge ²	Q _g	V _{DS} = 0.5V _{(BR)DSS} , I _D = 6A, V _{GS} = 10V		5.7		nC
Gate-Source Charge ²	Q _{gs}			0.8		
Gate-Drain Charge ²	Q _{gd}			1.7		
Turn-On Delay Time ²	t _{d(on)}	V _{DS} = 15V, I _D ≅ 6A, V _{GS} = 10V, R _{GS} = 6Ω		10		nS
Rise Time ²	t _r			22		
Turn-Off Delay Time ²	t _{d(off)}			22		
Fall Time ²	t _f			8		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current	I _S				2	A
Forward Voltage ¹	V _{SD}	I _F = 6A, V _{GS} = 0V			1.5	V
Reverse Recovery Time	t _{rr}	I _F = 6A, di/dt = 100A / μS V _{GS} = 0V		30		nS
Reverse Recovery Charge	Q _{rr}				12	

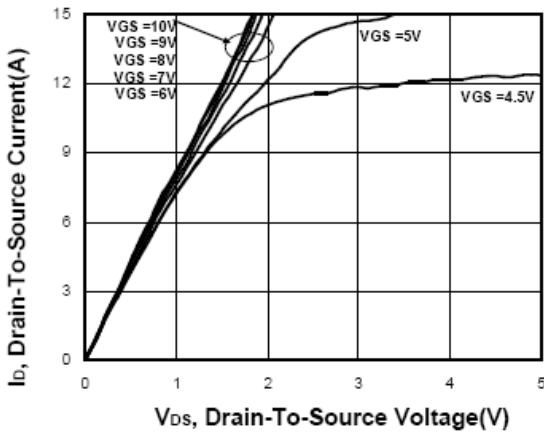
¹Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

²Independent of operating temperature.

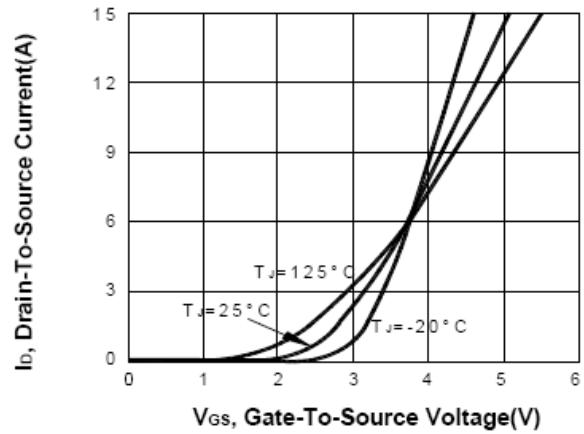
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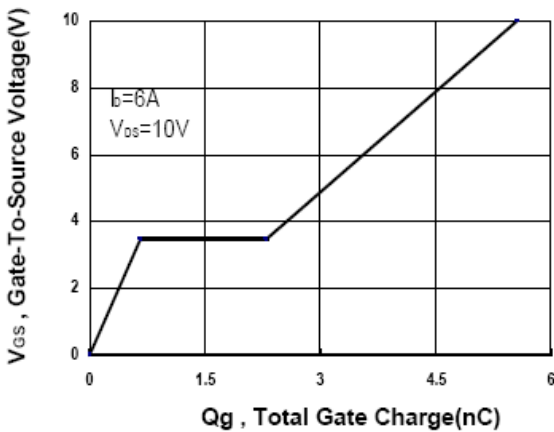
Output Characteristics



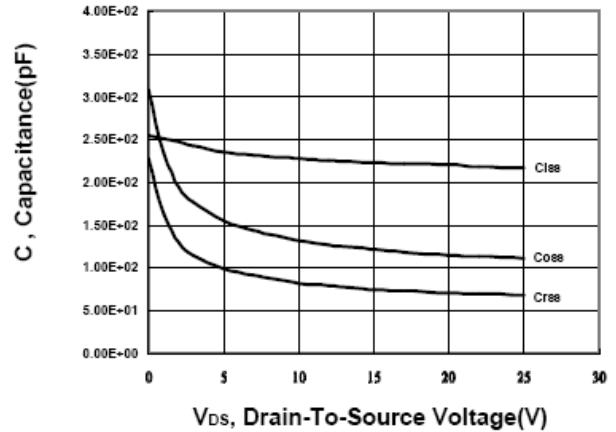
Transfer Characteristics



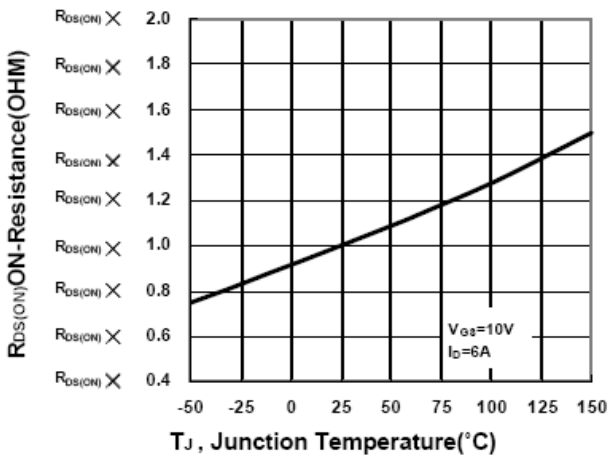
Gate charge Characteristics



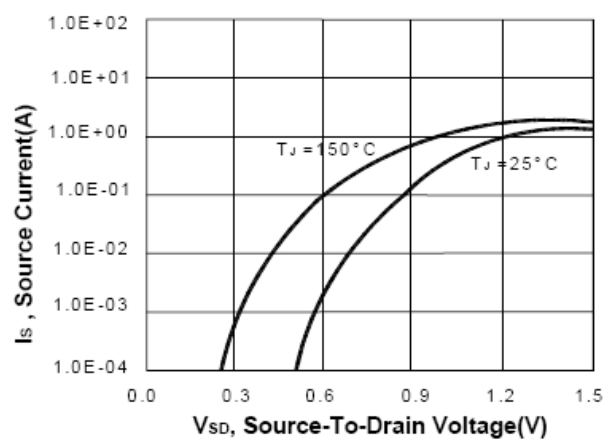
Capacitance Characteristic



On-Resistance VS Temperature



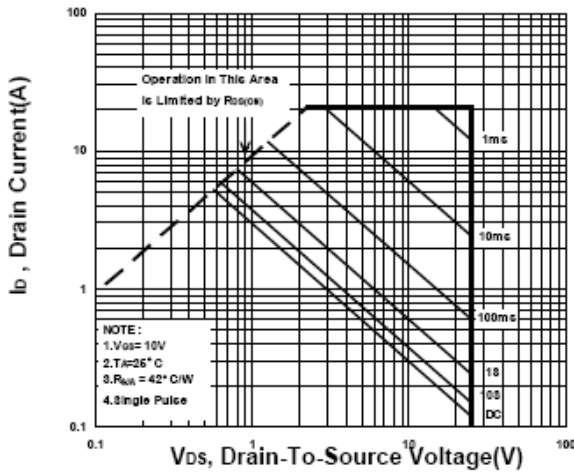
Source-Drain Diode Forward Voltage



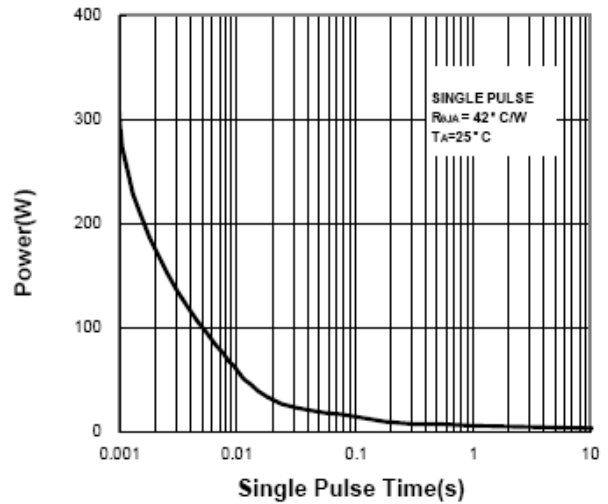
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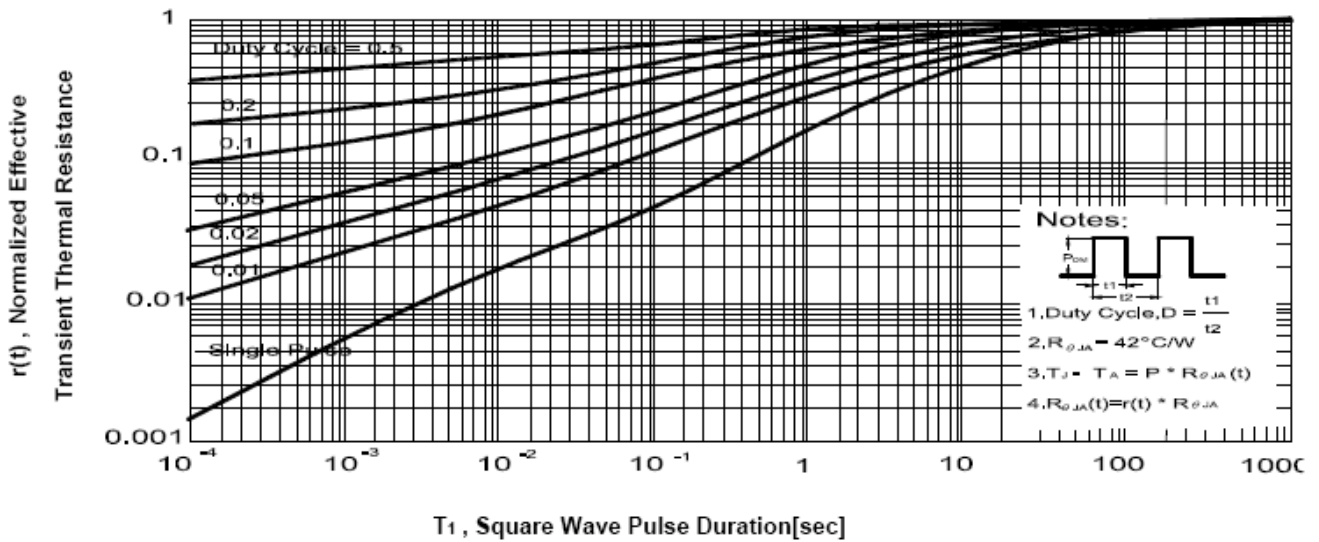
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



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SOT-223 MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	0.60	0.76	0.84	H	3.30	3.50	3.70
B	6.70	7.00	7.30	I	0.50	1.00	1.20
C	2.85	3.00	3.10	J	0.23	0.3	0.4
D	2.25	2.30	2.35	K	0°		10°
E	4.35	4.60	4.85	L	0	0.1	0.2
F	1.40	1.60	1.80	M			
G	6.30	6.50	6.80	N			

