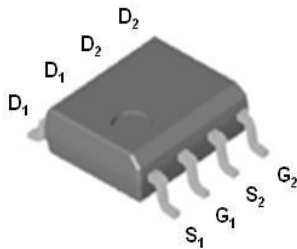


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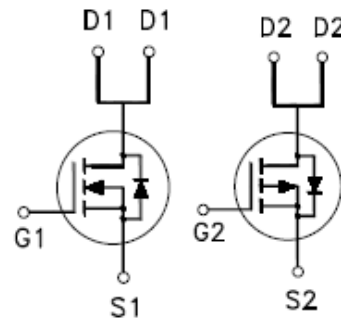
N&P-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D	Channel
40V	25mΩ @ $V_{GS} = 10V$	6A	N
-40V	35mΩ @ $V_{GS} = -10V$	-5.5A	P



SOP-8



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

PARAMETERS/TEST CONDITIONS		SYMBOL	CH.	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	N	40	V
			P	-40	
Gate-Source Voltage		V_{GS}	N	±20	
			P	±20	
Continuous Drain Current	$T_A = 25\text{ }^{\circ}\text{C}$	I_D	N	6	A
			P	-5.5	
	$T_A = 70^{\circ}\text{C}$		N	5	
			P	-4.5	
Pulsed Drain Current ¹		I_{DM}	N	30	
			P	-25	
Avalanche Current		I_{AS}	N	12	
			P	-23	
Avalanche Energy	L = 0.1mH	E_{AS}	N	7.2	mJ
			P	26	
Power Dissipation ³	$T_A = 25\text{ }^{\circ}\text{C}$	P_D	N	2	W
			P		
	$T_A = 70\text{ }^{\circ}\text{C}$		N	1.3	
			P		
Junction & Storage Temperature Range		T_J, T_{stg}		-55 to 150	°C

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N&P-Channel Enhancement Mode MOSFET

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE		SYMBOL		TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient ²	$t \leq 10s$	$R_{\theta JA}$	N-ch		60	°C / W
	Steady-State				91	
Junction-to-Ambient ²	$t \leq 10s$	$R_{\theta JA}$	P-ch		60	
	Steady-State				90	

¹Pulse width limited by maximum junction temperature.

²The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ\text{C}$.

³The Power dissipation is based on $R_{\theta JA} t \leq 10s$ value.

ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	CH.	LIMITS			UNITS
				MIN	TYP	MAX	
STATIC							
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	N	40			V
		$V_{GS} = 0V, I_D = -250\mu A$	P	-40			
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	N	1.3	1.6	2.3	
		$V_{DS} = V_{GS}, I_D = -250\mu A$	P	-1	-1.7	-3	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$	N			± 100	nA
		$V_{DS} = 0V, V_{GS} = \pm 20V$	P			± 100	
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 32V, V_{GS} = 0V$	N			1	μA
		$V_{DS} = -32V, V_{GS} = 0V$	P			-1	
		$V_{DS} = 30V, V_{GS} = 0V, T_J = 55^\circ C$	N			10	
		$V_{DS} = -30V, V_{GS} = 0V, T_J = 55^\circ C$	P			-10	
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = 4.5V, I_D = 6A$	N		22	35	mΩ
		$V_{GS} = -4.5V, I_D = -4.5A$	P		34	50	
		$V_{GS} = 10V, I_D = 6A$	N		19	25	
		$V_{GS} = -10V, I_D = -5.5A$	P		27	35	
Forward Transconductance ¹	g_{fs}	$V_{DS} = 10V, I_D = 6A$	N		30		S
		$V_{DS} = -10V, I_D = -5.5A$	P		18		

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DYNAMIC							
Input Capacitance	C _{iss}	N-Channel V _{GS} = 0V, V _{DS} = 20V, f = 1MHz	N		416		pF
Output Capacitance	C _{oss}		P		1142		
			N		58		
Reverse Transfer Capacitance	C _{rss}		P-Channel V _{GS} = 0V, V _{DS} = -20V, f = 1MHz	P		140	
		N		33			
Gate Resistance	R _g	V _{GS} = 0V, V _{DS} = 0V, f = 1MHz	P		105		Ω
			N		4		
Total Gate Charge ²	Q _g	N-Channel V _{DS} = 20V, V _{GS} = 10V, I _D = 6A	N		9		nC
Gate-Source Charge ²	Q _{gs}		P		24		
Gate-Drain Charge ²	Q _{gd}	P-Channel V _{DS} = -20V, V _{GS} = -10V, I _D = -5.5A	N		1.3		
			P		3.4		
Turn-On Delay Time ²	t _{d(on)}	N-Channel V _{DS} = 20V, I _D ≅ 6A, V _{GS} = 10V, R _{GEN} = 6Ω	N		2.3		nS
			P		5.5		
Rise Time ²	t _r	P-Channel V _{DS} = -20V, I _D ≅ -5.5A, V _{GS} = -10V, R _{GEN} = 6Ω	N		11		
Turn-Off Delay Time ²	t _{d(off)}		P		22		
Fall Time ²	t _f		N		10		
			P		16		
			N		24		
			P		50		
			N		10		
			P		25		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T _J = 25 °C)							
Continuous Current	I _S		N			1.6	A
			P			-1.6	
Forward Voltage ¹	V _{SD}	I _F = 6A, V _{GS} = 0V	N			1.2	V
		I _F = -5.5A, V _{GS} = 0V	P			-1.2	
Reverse Recovery Time	t _{rr}	I _F = 6A, dI _F /dt = 100A / μS I _F = -5.5A, dI _F /dt = 100A / μS	N			9.3	nS
			P			14	
Reverse Recovery Charge	Q _{rr}		N			2.2	nC
			P			5	

¹Pulse test : Pulse Width $\leq 300 \mu sec$, Duty Cycle $\leq 2\%$.

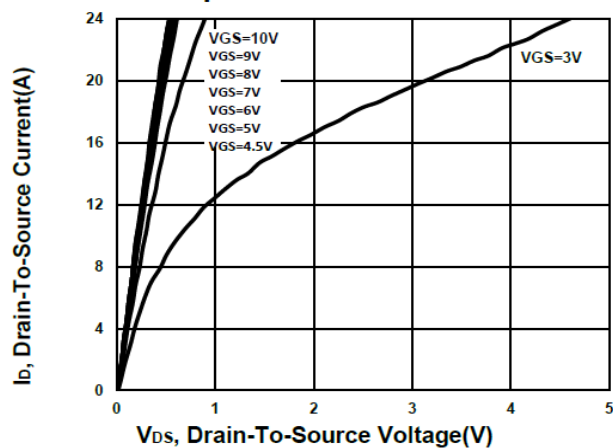
²Independent of operating temperature.

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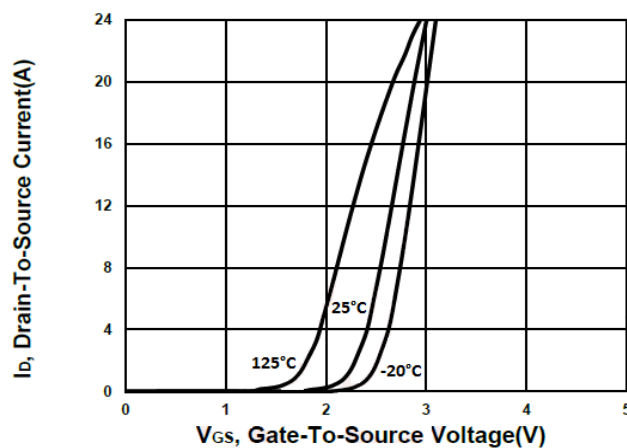
N&P-Channel Enhancement Mode MOSFET

N-CHANNEL

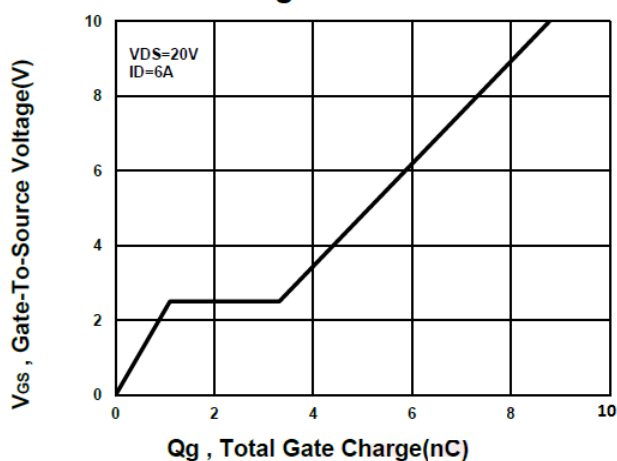
Output Characteristics



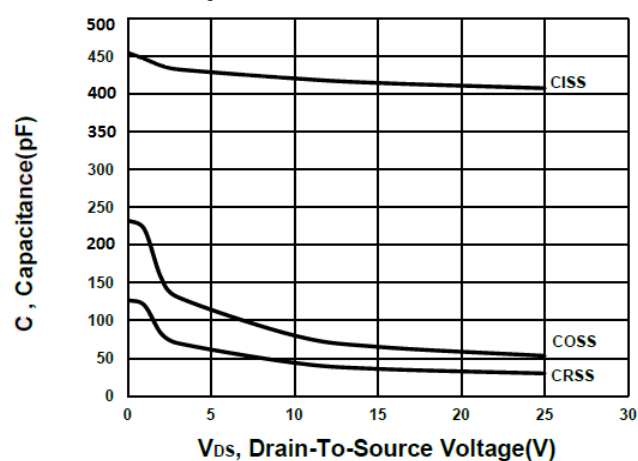
Transfer Characteristics



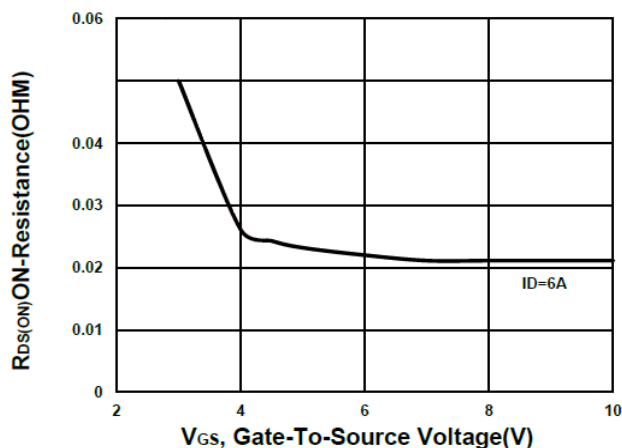
Gate charge Characteristics



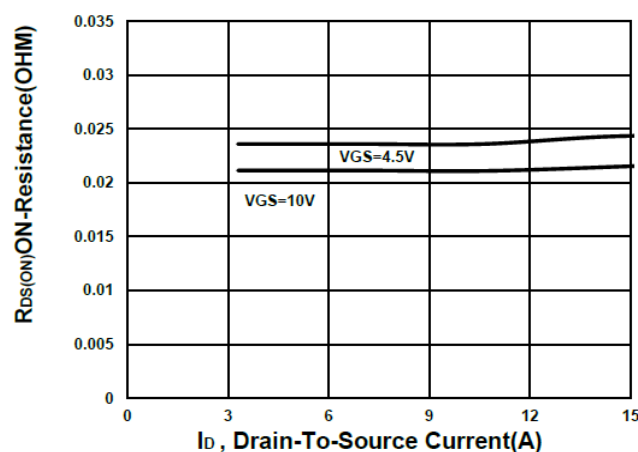
Capacitance Characteristic



On-Resistance VS Gate-To-Source



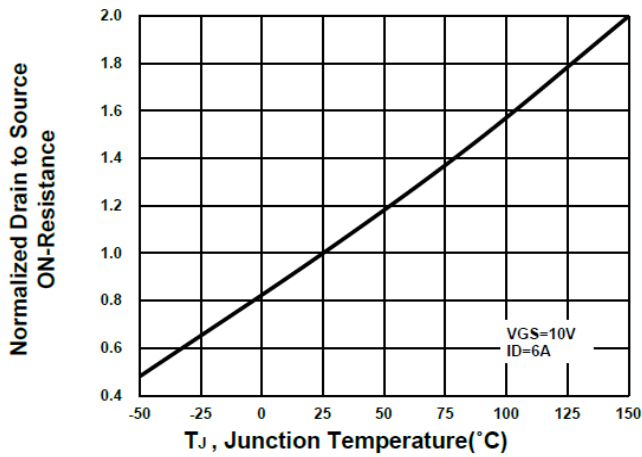
On-Resistance VS Drain Current



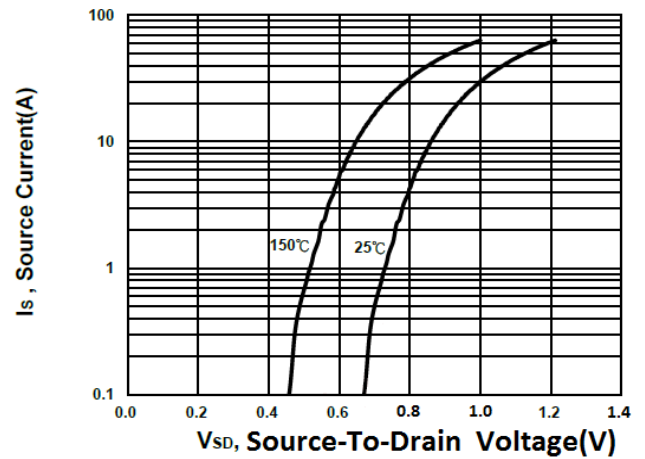
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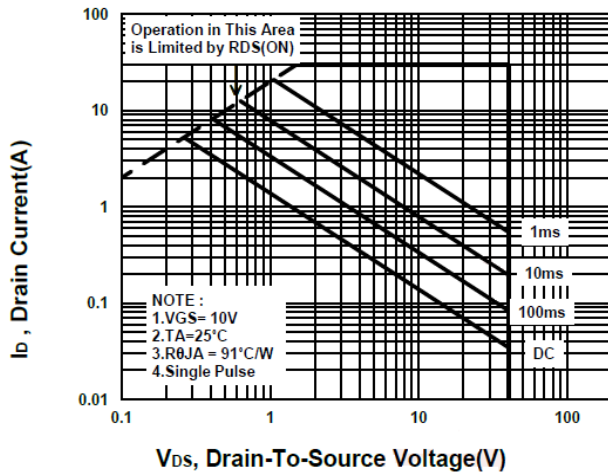
On-Resistance VS Temperature



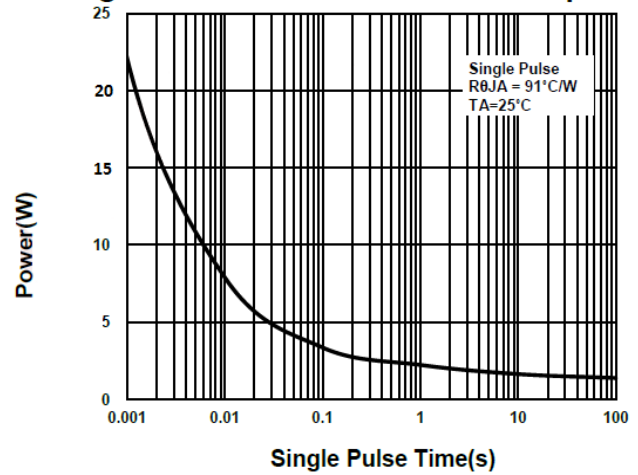
Source-Drain Diode Forward Voltage



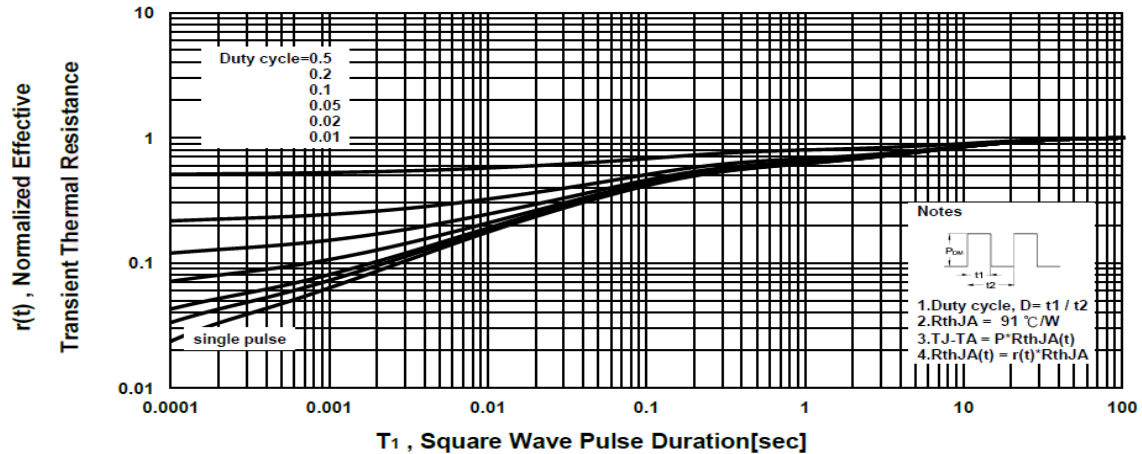
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

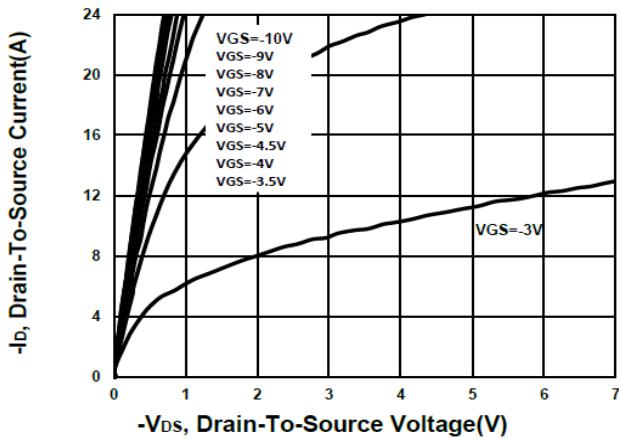


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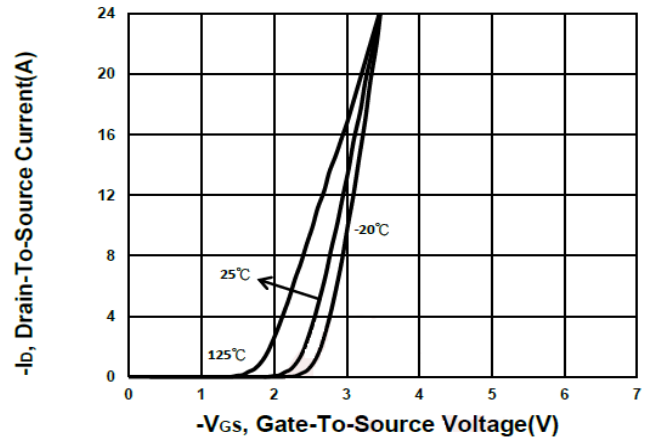
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P-CHANNEL

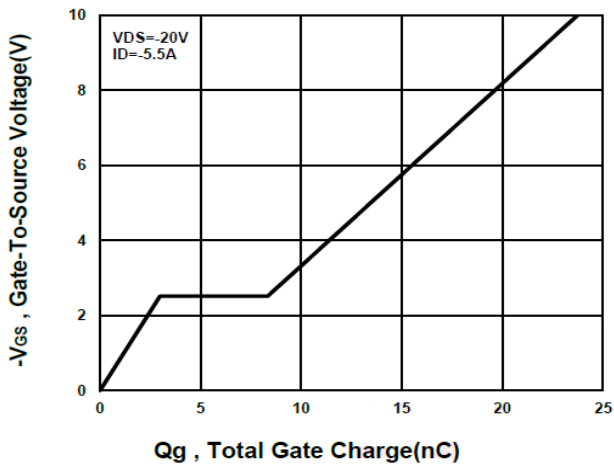
Output Characteristics



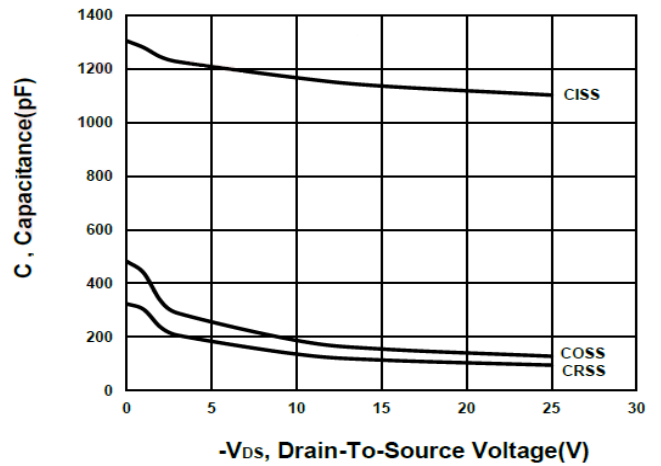
Transfer Characteristics



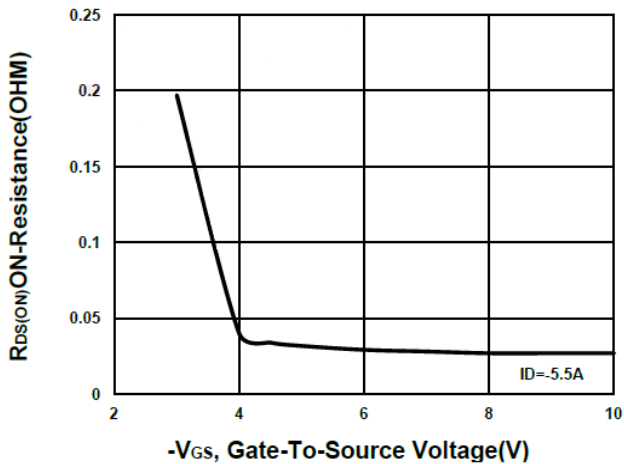
Gate charge Characteristics



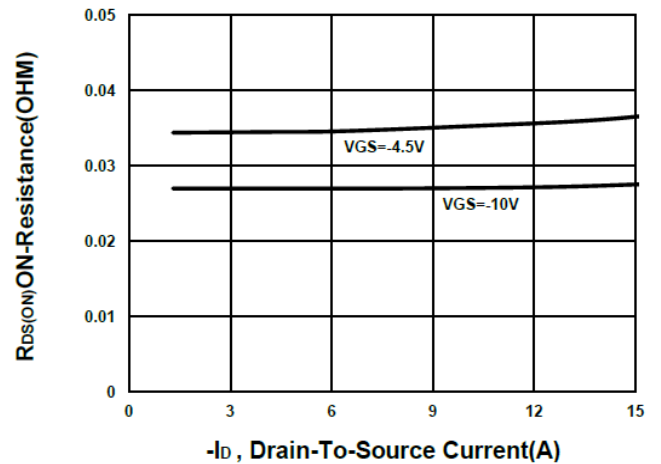
Capacitance Characteristic



On-Resistance VS Gate-To-Source



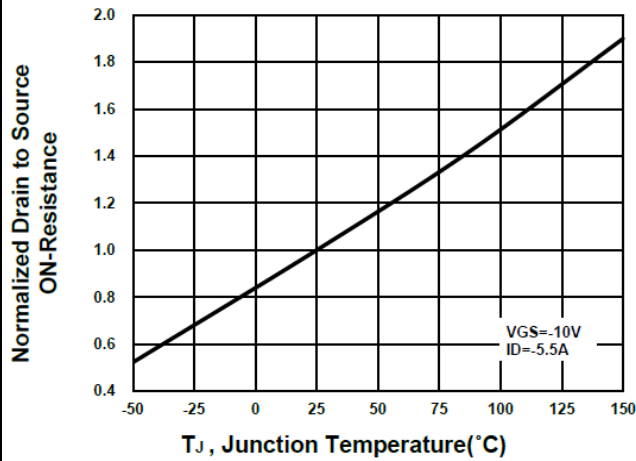
On-Resistance VS Drain Current



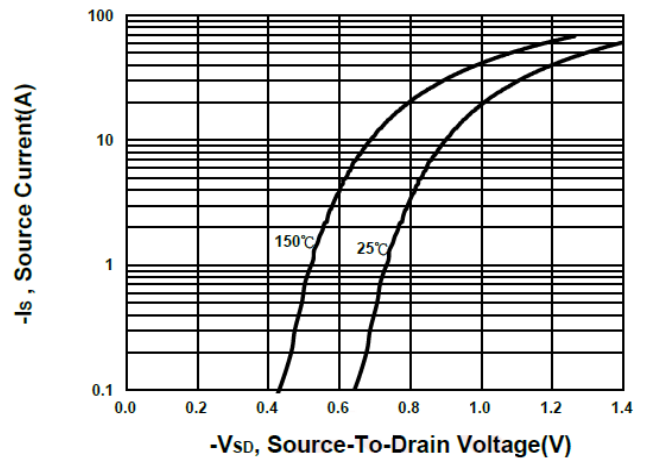
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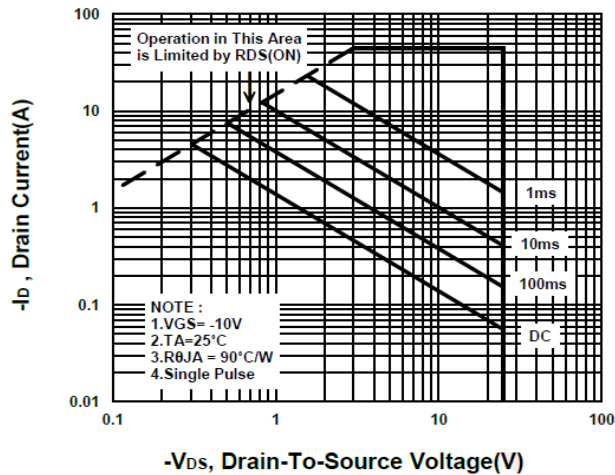
On-Resistance VS Temperature



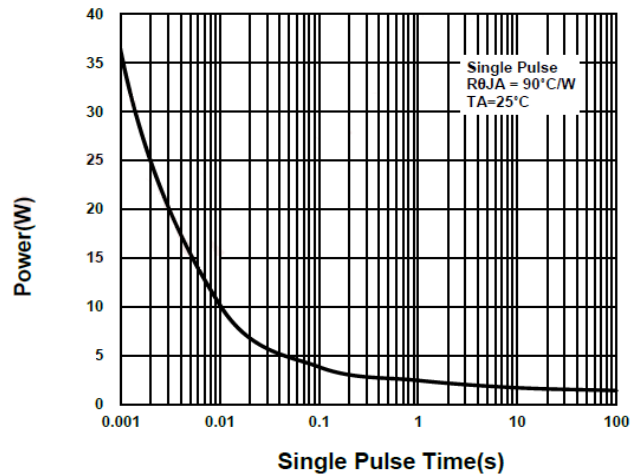
Source-Drain Diode Forward Voltage



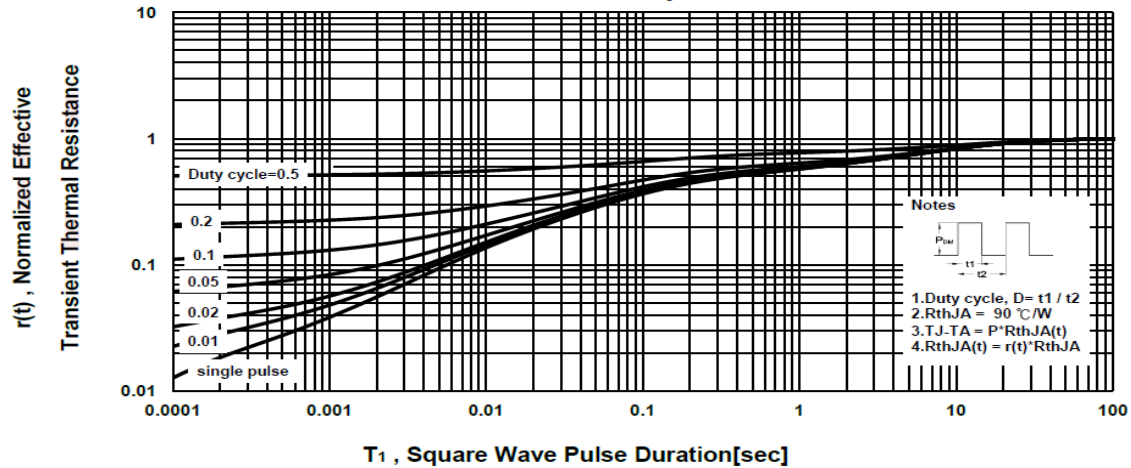
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



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Package Dimension

SOP-8 MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	4.8	4.9	5.0	H	0.4	0.6	0.93
B	3.8	3.9	4.0	I	0.19	0.21	0.25
C	5.79	6.0	6.2	J	0.25	0.375	0.5
D	0.33	0.4	0.51	K	0°	3°	18°
E	1.25	1.27	1.29				
F	1.1	1.3	1.65				
G	0.05	0.15	0.25				

