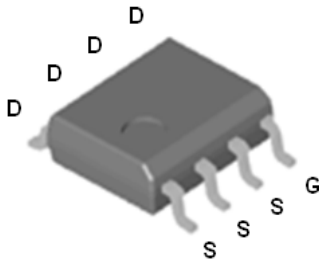


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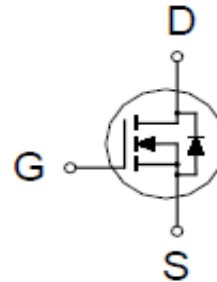
N-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
30V	4mΩ @ $V_{GS} = 10V$	22A



SOP-8



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	V
Continuous Drain Current	$T_A = 25\text{ }^{\circ}\text{C}$	I_D	22	A
	$T_A = 70\text{ }^{\circ}\text{C}$		17	
Pulsed Drain Current ¹		I_{DM}	100	
Avalanche Current		I_{AS}	37	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	68	mJ
Power Dissipation	$T_A = 25\text{ }^{\circ}\text{C}$	P_D	2.7	W
	$T_A = 70\text{ }^{\circ}\text{C}$		1.7	
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-Ambient	$R_{\theta JA}$		45	$^{\circ}\text{C} / \text{W}$
Junction-to-Case	$R_{\theta JC}$		25	

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 $T_A = 25^{\circ}\text{C}$.

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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	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	30			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1	1.5	3	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 24V, V_{GS} = 0V$			1	μA
		$V_{DS} = 20V, V_{GS} = 0V, T_J = 55^\circ C$			10	
Drain-Source On-State Resistance ¹	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 16A$		3.7	5	m Ω
		$V_{GS} = 10V, I_D = 20A$		3.2	4	
Forward Transconductance ¹	g_{fs}	$V_{DS} = 5V, I_D = 20A$		60		S
DYNAMIC						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 15V, f = 1MHz$		2210		pF
Output Capacitance	C_{oss}			390		
Reverse Transfer Capacitance	C_{rss}			234		
Gate Resistance	R_g	$V_{GS} = 0V, V_{DS} = 0V, f = 1MHz$		1.4		Ω
Total Gate Charge ²	$Q_g(V_{GS}=10V)$	$V_{DS} = 15V, I_D = 20A$		44		nC
	$Q_g(V_{GS}=4.5V)$			23		
Gate-Source Charge ²	Q_{gs}			5.7		
Gate-Drain Charge ²	Q_{gd}			13		
Turn-On Delay Time ²	$t_{d(on)}$	$V_{DS} = 15V,$ $I_D \cong 20A, V_{GS} = 20V, R_{GEN} = 6\Omega$		25		nS
Rise Time ²	t_r			12		
Turn-Off Delay Time ²	$t_{d(off)}$			56		
Fall Time ²	t_f			10		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_J = 25^\circ C$)						
Continuous Current	I_S				22	A
Forward Voltage ¹	V_{SD}	$I_F = 20A, V_{GS} = 0V$			1	V
Diode Reverse Recovery Time	t_{rr}	$I_F = 20A, dl/dt = 100A / \mu S$		27		nS
Diode Reverse Recovery Charge	Q_{rr}			15		nC

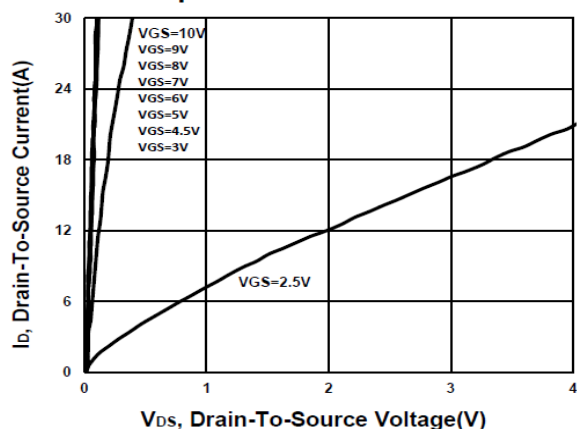
¹Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

²Independent of operating temperature.

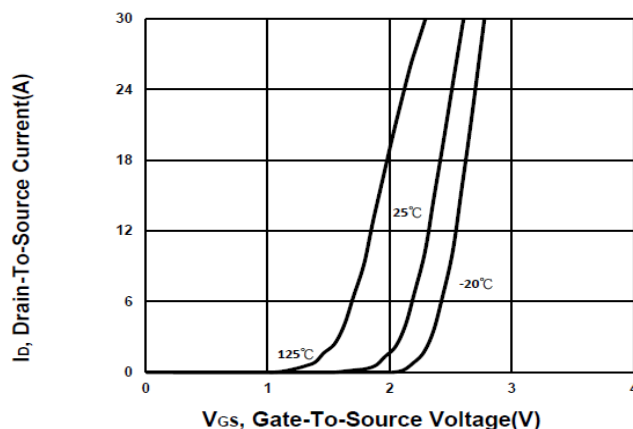
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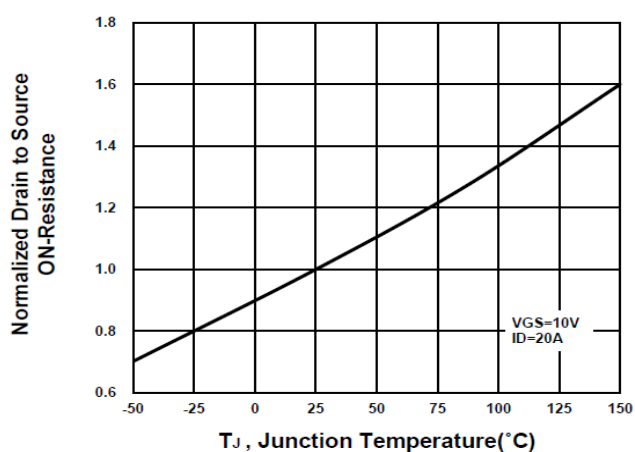
Output Characteristics



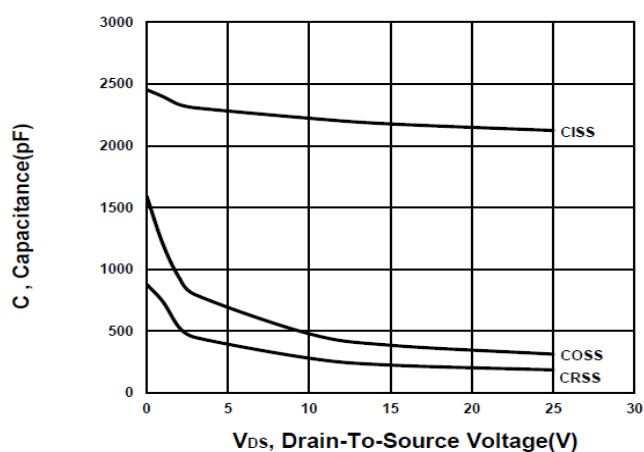
Transfer Characteristics



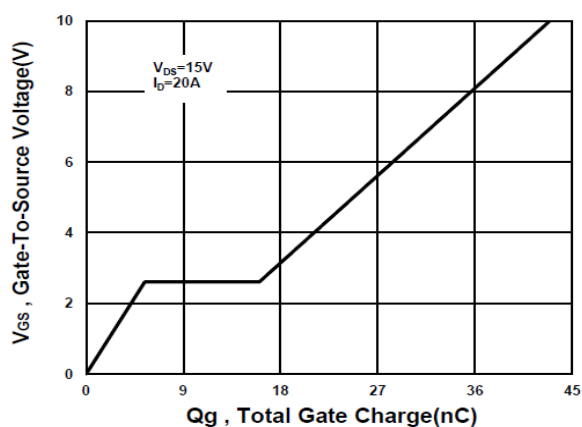
On-Resistance VS Temperature



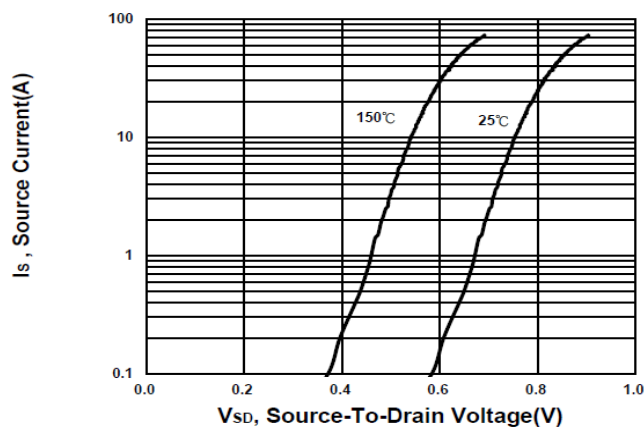
Capacitance Characteristic



Gate charge Characteristics



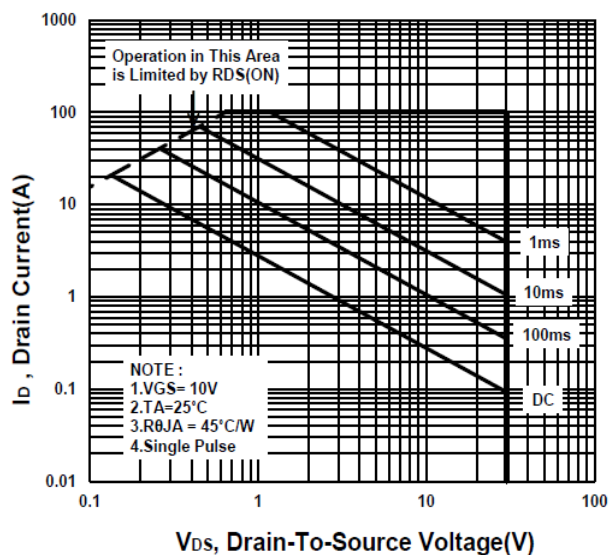
Source-Drain Diode Forward Voltage



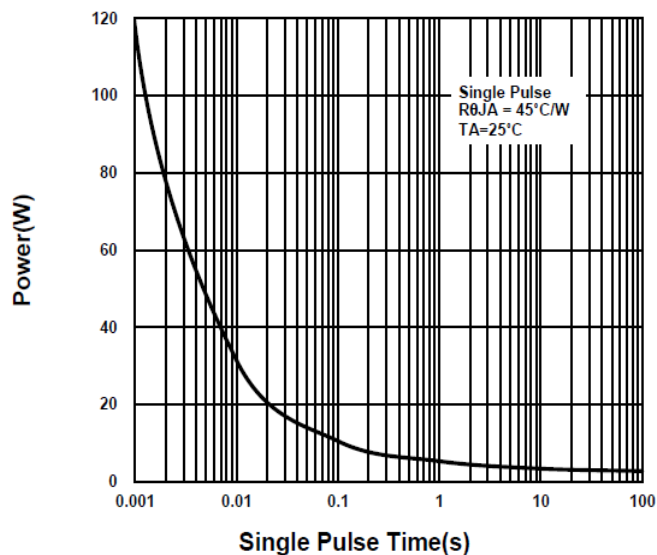
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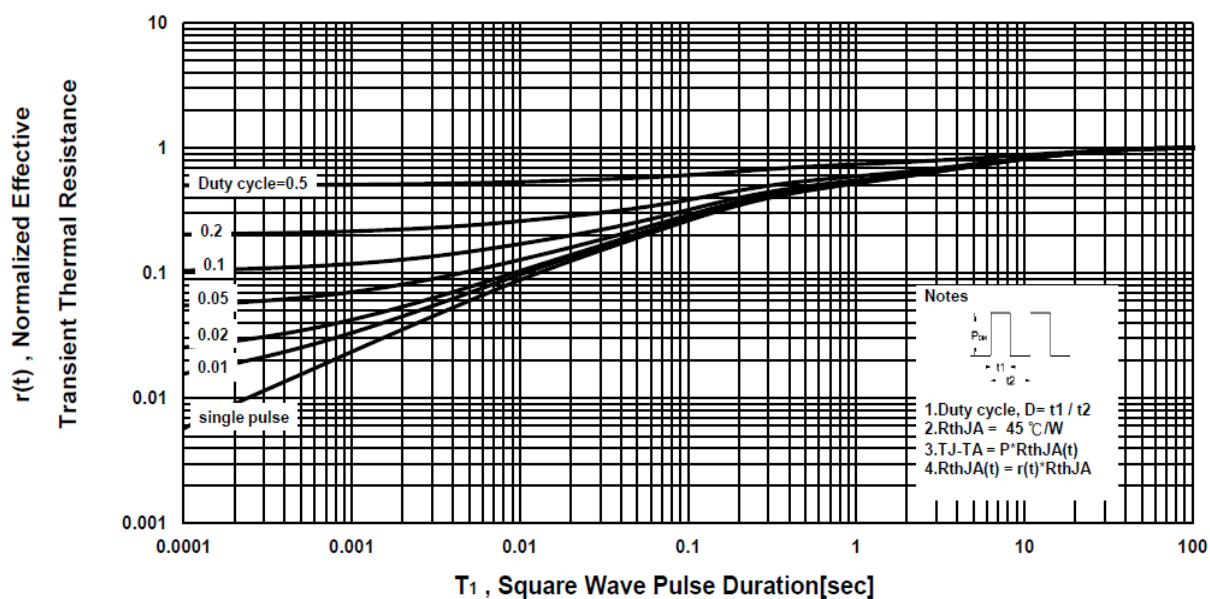
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



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Package Dimension

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				

