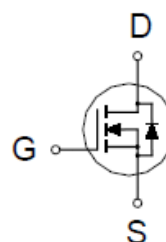
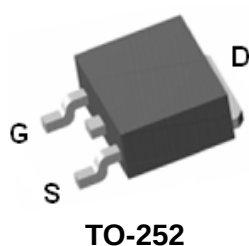


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PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
40V	10m Ω @ $V_{GS} = 10V$	49A



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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	40	V
Gate-Source Voltage		V_{GS}	± 20	
Continuous Drain Current	$T_C = 25\text{ }^{\circ}\text{C}$	I_D	49	A
	$T_C = 100\text{ }^{\circ}\text{C}$		31	
Pulsed Drain Current ¹		I_{DM}	100	
Avalanche Current		I_{AS}	30	
Avalanche Energy	$L=0.1\text{mH}$	E_{AS}	45	mJ
Power Dissipation	$T_C = 25\text{ }^{\circ}\text{C}$	P_D	40	W
	$T_C = 100\text{ }^{\circ}\text{C}$		16	
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	$R_{\theta JC}$		2.5	$^{\circ}\text{C} / \text{W}$
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 = 250μA	40			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1.7	2.2	3.0	
Gate-Body Leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 32V, V _{GS} = 0V			1	μA
		V _{DS} = 30V, V _{GS} = 0V , T _J = 55°C			10	
On-State Drain Current ¹	I _{D(ON)}	V _{DS} = 10V, V _{GS} = 10V	100			A
Drain-Source On-State Resistance ¹	R _{DS(ON)}	V _{GS} = 5V, I _D = 8A		10	15	mΩ
		V _{GS} = 10V, I _D = 10A		8.4	10	
Forward Transconductance ¹	g _{fs}	V _{DS} = 10V, I _D = 10A		81		S
DYNAMIC						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = 20V, f = 1MHz		1451		pF
Output Capacitance	C _{oss}			149		
Reverse Transfer Capacitance	C _{rss}			129		
Gate Resistance	R _g	V _{GS} = 0V, V _{DS} = 0V, f=1MHz		1.4		Ω
Total Gate Charge ²	Q _g	V _{DS} = 20V, V _{GS} = 10V, I _D = 10A		37.1		nC
Gate-Source Charge ²	Q _{gs}			5		
Gate-Drain Charge ²	Q _{gd}			11		
Turn-On Delay Time ²	t _{d(on)}	V _{DS} = 20V, I _D ≅ 10A, V _{GS} = 10V, R _{GEN} = 6Ω		10		nS
Rise Time ²	t _r			36		
Turn-Off Delay Time ²	t _{d(off)}			37		
Fall Time ²	t _f			12		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T _J = 25 °C)						
Continuous Current	I _S				49	A
Forward Voltage ¹	V _{SD}	I _F = 10A, V _{GS} = 0V			1.3	V
Reverse Recovery Time	t _{rr}	I _F = 10A, di _F /dt=100A/μS		21		nS
Reverse Recovery Charge	Q _{rr}			16		nC

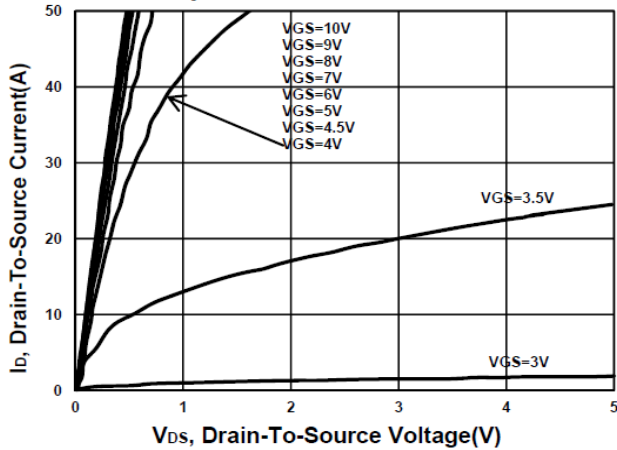
¹Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

²Independent of operating temperature.

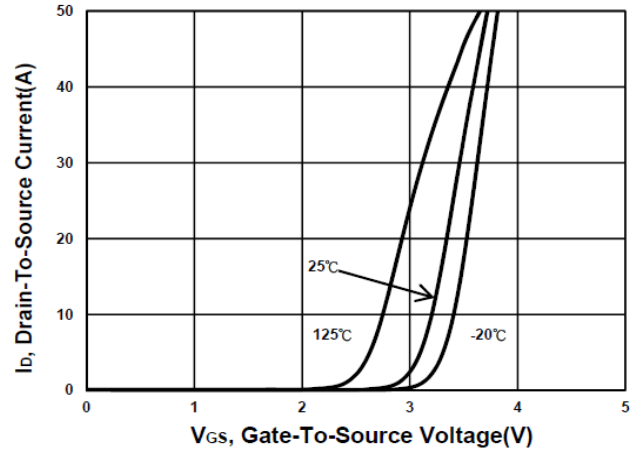
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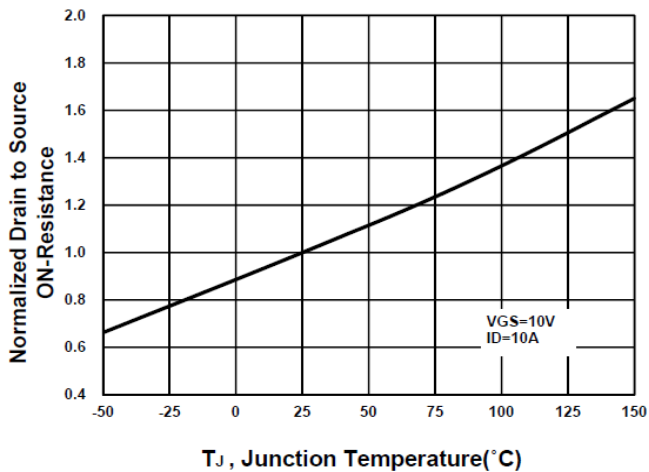
Output Characteristics



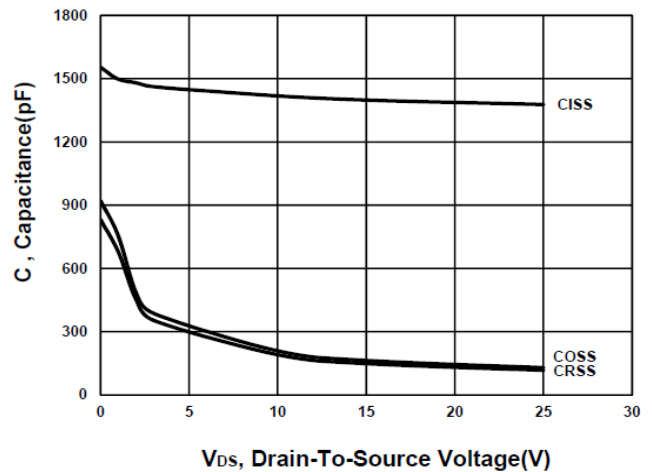
Transfer Characteristics



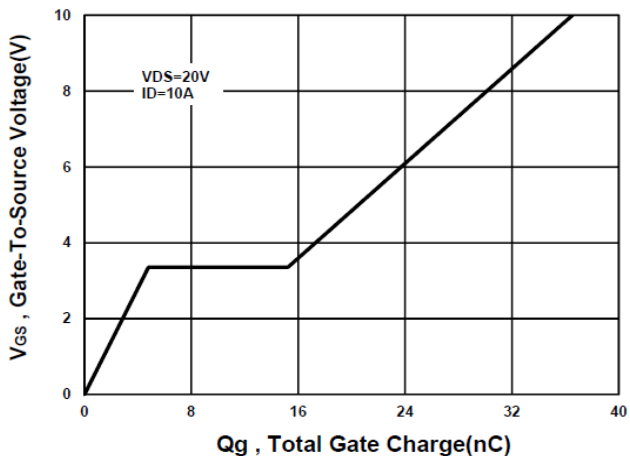
On-Resistance VS Temperature



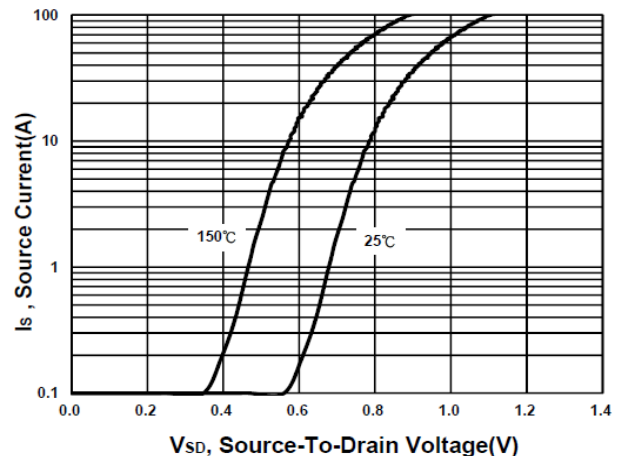
Capacitance Characteristic



Gate charge Characteristics



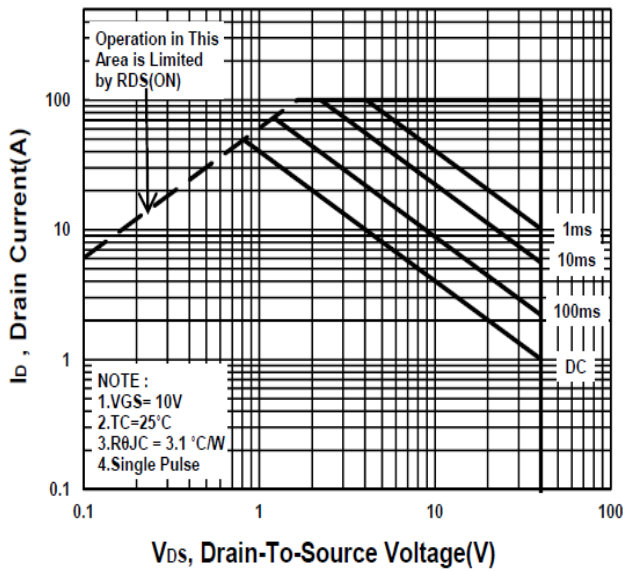
Source-Drain Diode Forward Voltage



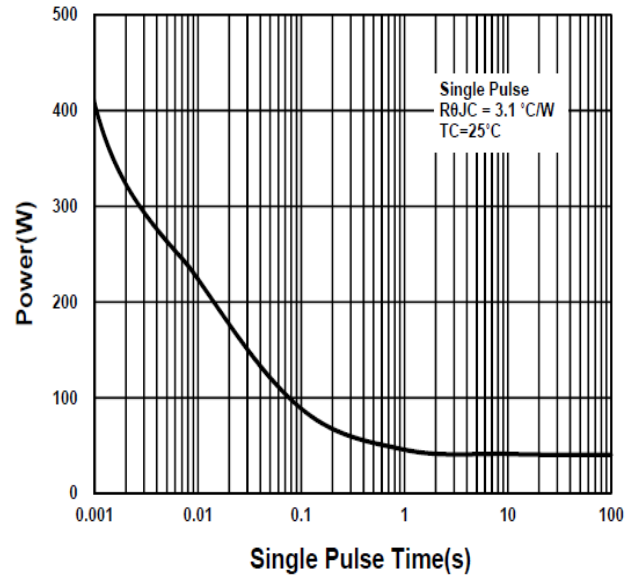
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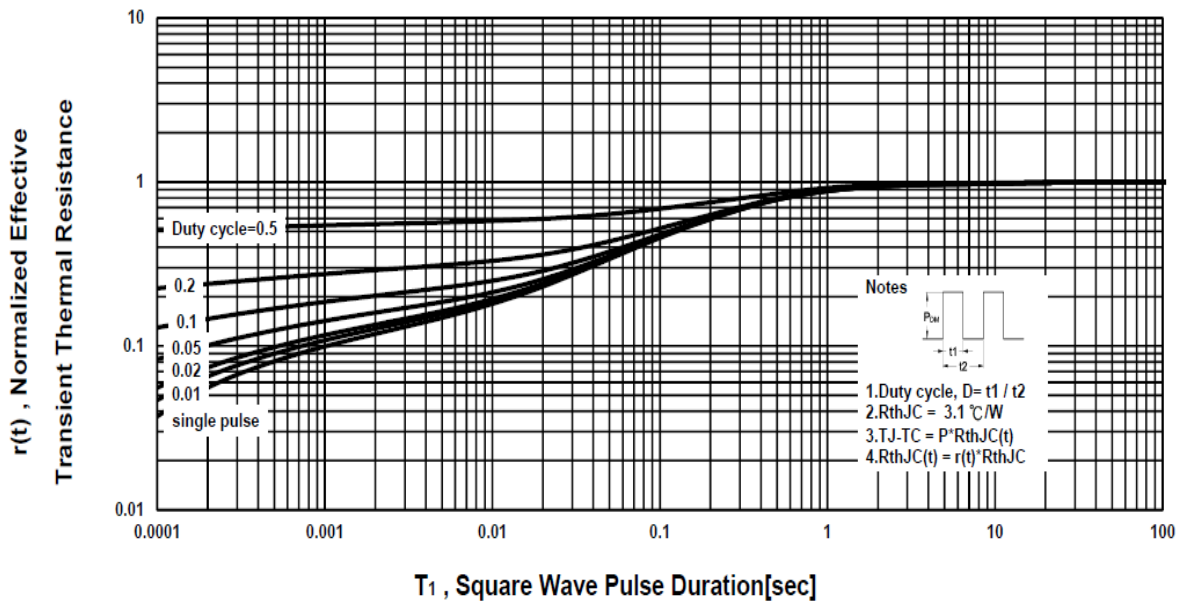
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



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Package Dimension

TO-252 (DPAK) MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	8.9	10	10.41	J	4.8		5.64
B	2.1	2.2	2.4	K	0.15		1.1
C	0.4	0.5	0.61	L	0.4	0.76	0.89
D	0.82	1.2	1.5	M	4.2	4.58	5
E	0.4	0.5	0.61	S	4.9	5.1	5.3
F	0		0.2	T	4.6	4.75	5.44
G	5.3	6.1	6.3	U	1.4		1.78
H	0.9		1.7	V	0.55	1.25	1.7
I	6.3	6.5	6.8				

