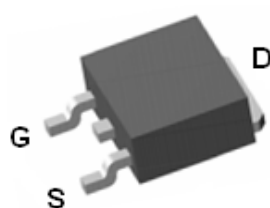


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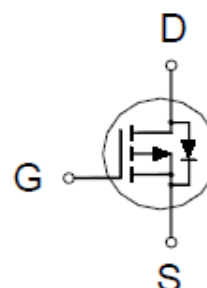
P-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
-40V	15mΩ @ $V_{GS} = 10V$	-43A



TO-252



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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	-40	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	$T_C = 25\text{ }^{\circ}\text{C}$	I_D	-43	A
	$T_C = 100\text{ }^{\circ}\text{C}$		-27	
Pulsed Drain Current ¹		I_{DM}	-100	
Avalanche Current		I_{AS}	-36	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	64.8	mJ
Power Dissipation	$T_C = 25\text{ }^{\circ}\text{C}$	P_D	50	W
	$T_C = 100\text{ }^{\circ}\text{C}$		32	
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	$R_{\theta JA}$		75	$^{\circ}\text{C} / \text{W}$
Junction-to-Case	$R_{\theta JC}$		2.5	

¹Pulse width limited by maximum junction temperature.

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ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$, 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 = -1mA	-40			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-1	-1.7	-3	
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	
Drain-Source On-State Resistance ¹	R _{DS(ON)}	V _{GS} = -4.5V, I _D = -15A		17	24	mΩ
		V _{GS} = -10V, I _D = -20A		12	15	
Forward Transconductance ¹	g _{fs}	V _{DS} = -5V, I _D = -20A		42		S
DYNAMIC						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = -20V, f = 1MHz		2730		pF
Output Capacitance	C _{oss}			308		
Reverse Transfer Capacitance	C _{rss}			242		
Gate Resistance	R _g	V _{GS} = 0V, V _{DS} = 0V, f = 1MHz		4.8		Ω
Total Gate Charge ²	Q _g	V _{GS} = -10 V, V _{DS} = -20V, I _D = -20A		52		nC
Gate-Source Charge ²	Q _{gs}			12		
Gate-Drain Charge ²	Q _{gd}			11		
Turn-On Delay Time ²	t _{d(on)}	V _{DS} = -20V, I _D ≅ -20A, V _{GS} = -10V, R _{GEN} = 6Ω		19		nS
Rise Time ²	t _r			31		
Turn-Off Delay Time ²	t _{d(off)}			66		
Fall Time ²	t _f			41		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T _C = 25 °C)						
Continuous Current	I _S				-43	A
Forward Voltage ¹	V _{SD}	I _F = -20A, V _{GS} = 0V			-1.4	V
Reverse Recovery Time	t _{rr}	I _F = -20A, dI _F /dt = 100A / μS		19		nS
Reverse Recovery Charge	Q _{rr}			11		nC

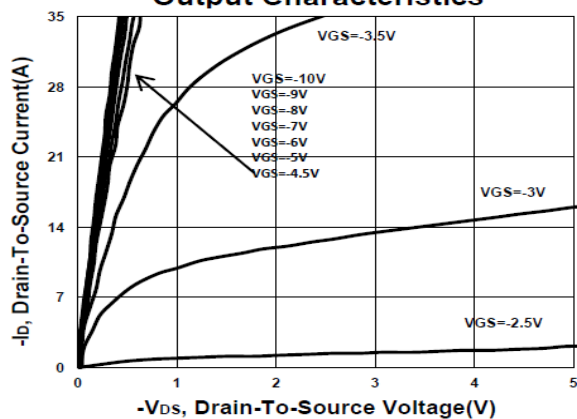
¹Pulse test : Pulse Width $\leq 300 \mu\text{sec}$, Duty Cycle $\leq 2\%$.

²Independent of operating temperature.

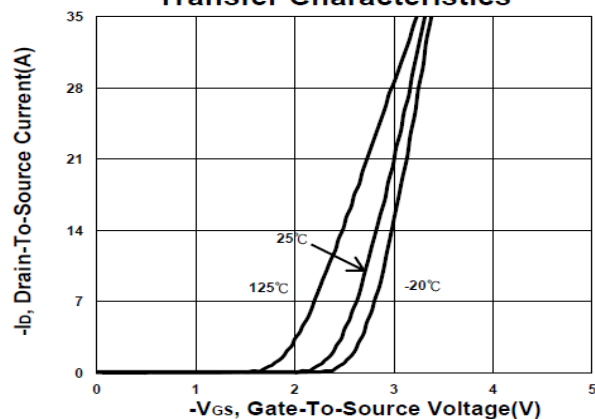
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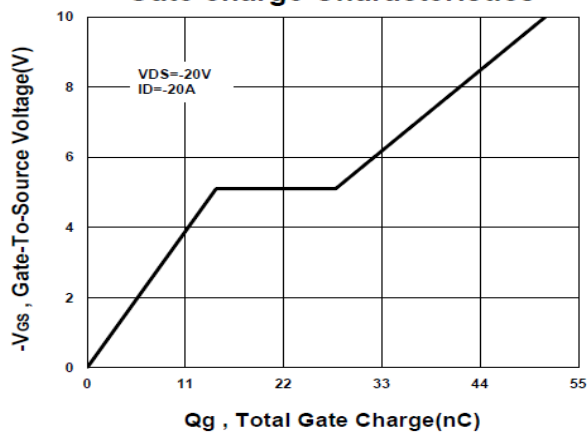
Output Characteristics



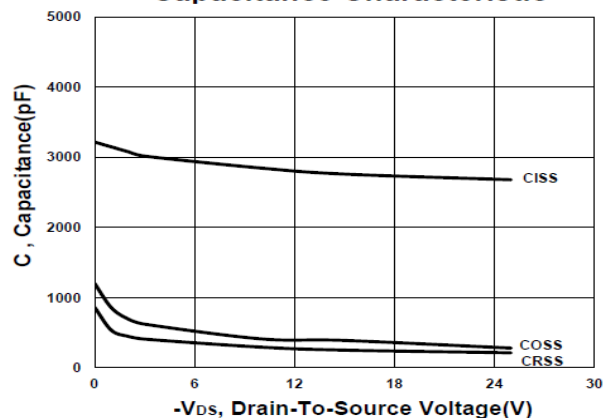
Transfer Characteristics



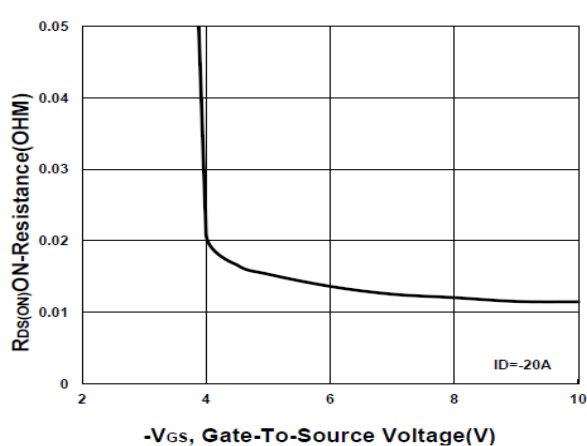
Gate charge Characteristics



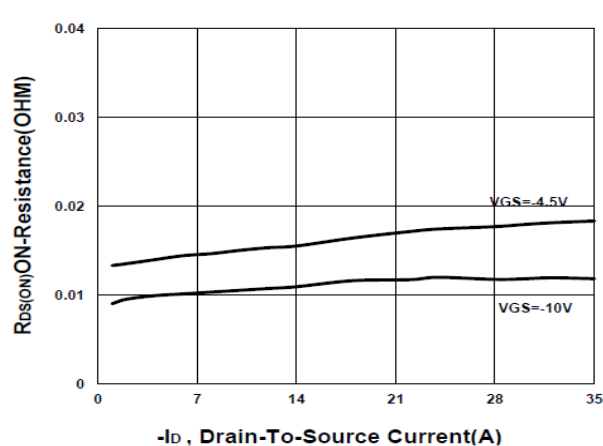
Capacitance Characteristic



On-Resistance VS Gate-To-Source



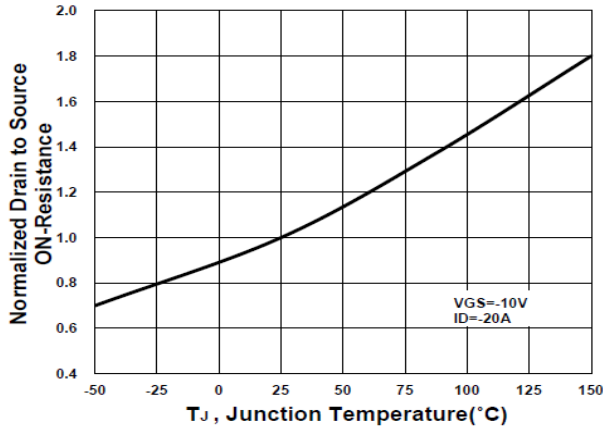
On-Resistance VS Drain Current



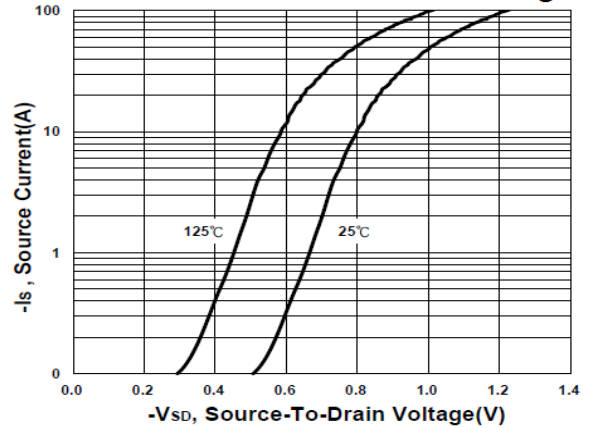
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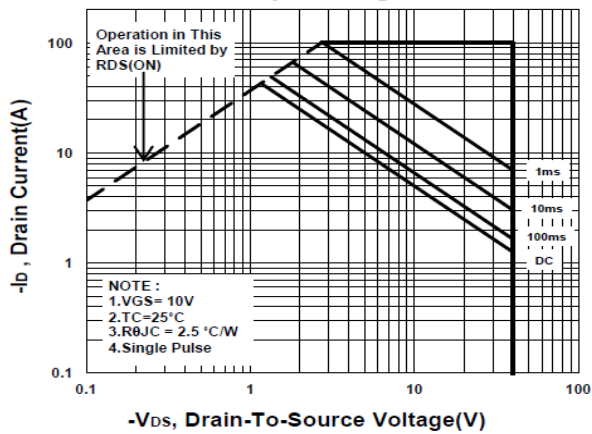
On-Resistance VS Temperature



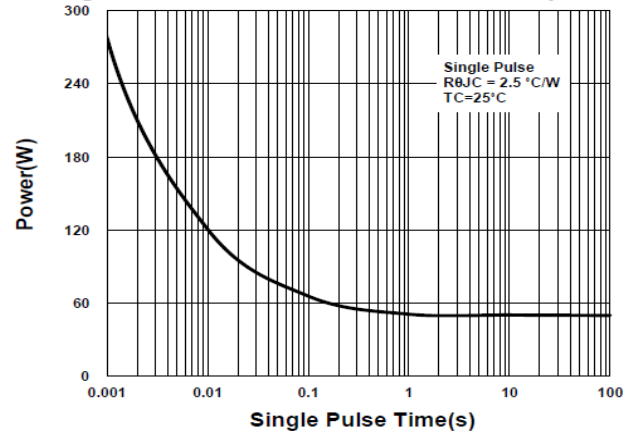
Source-Drain Diode Forward Voltage



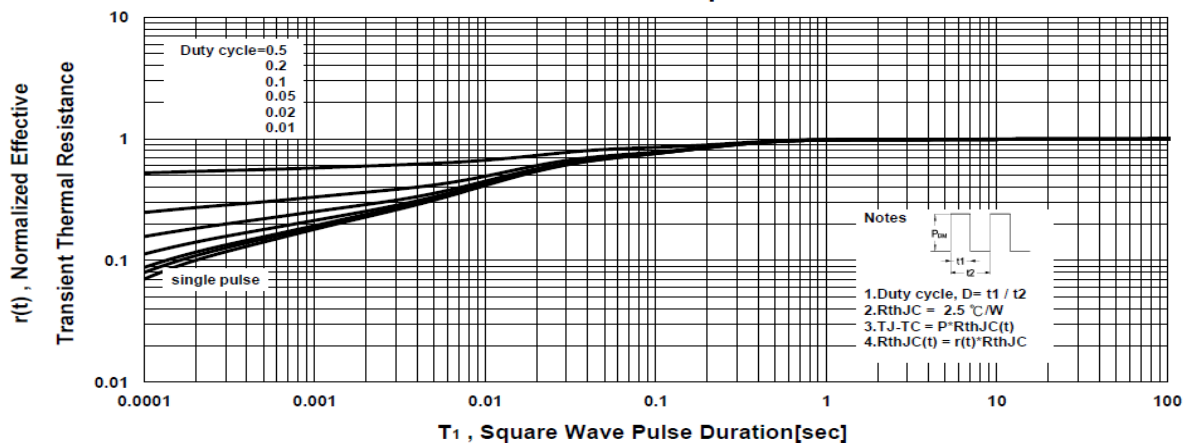
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



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Package Dimension

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	2.5	K	0.15		1.49
C	0.4	0.5	0.61	L	0.4	0.76	0.91
D	0.82	1.2	1.5	M	4.2	4.58	5
E	0.35	0.5	0.65	S	4.57	5.1	5.52
F	0		0.2	T	3.81	4.75	5.24
G	5.3	6.1	6.3	U	1.4		1.78
H	0.5		1.7	V	0.55	1.25	1.7
I	6.3	6.5	6.8				

