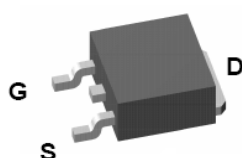


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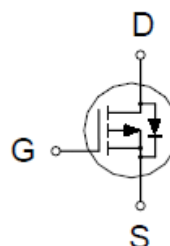
P-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
-20V	115mΩ @ $V_{GS} = -4.5V$	-10A



TO-252



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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	-20	V
Gate-Source Voltage		V_{GS}	±12	
Continuous Drain Current	$T_C = 25\text{ }^{\circ}\text{C}$	I_D	-10	A
	$T_C = 100\text{ }^{\circ}\text{C}$		-6.2	
Pulsed Drain Current ¹		I_{DM}	-24	
Power Dissipation	$T_C = 25\text{ }^{\circ}\text{C}$	P_D	25	W
	$T_C = 100\text{ }^{\circ}\text{C}$		9.6	
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	$R_{\theta JC}$		5	$^{\circ}\text{C} / \text{W}$
Junction-to-Ambient	$R_{\theta JA}$		110	

¹Pulse width limited by maximum junction temperature.

²Duty cycle ≤ 1%

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P-Channel Enhancement Mode MOSFET

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

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-20			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.45	-0.8	-1.2	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 12V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -16V, V_{GS} = 0V$			-1	μA
		$V_{DS} = -13.2V, V_{GS} = 0V, T_J = 125^\circ C$			-10	
On-State Drain Current ¹	$I_{D(ON)}$	$V_{DS} = -5V, V_{GS} = -4.5V$	-24			A
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = -2.5V, I_D = -2A$		124	180	mΩ
		$V_{GS} = -4.5V, I_D = -3A$		93	115	
Forward Transconductance ¹	g_{fs}	$V_{DS} = -5V, I_D = -3A$		4.4		S
DYNAMIC						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = -10V, f = 1MHz$		369		pF
Output Capacitance	C_{oss}			78		
Reverse Transfer Capacitance	C_{rss}			67		
Total Gate Charge ²	Q_g	$V_{DS} = 0.5V_{(BR)DSS}, V_{GS} = -4.5V, I_D = -3A$		5.1		nC
Gate-Source Charge ²	Q_{gs}			1		
Gate-Drain Charge ²	Q_{gd}			2		
Turn-On Delay Time ²	$t_{d(on)}$	$V_{DD} = -10V, I_D \cong -1A, V_{GS} = -5V, R_G = 6\Omega$			25	nS
Rise Time ²	t_r				60	
Turn-Off Delay Time ²	$t_{d(off)}$				70	
Fall Time ²	t_f				60	
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_J = 25^\circ C$)						
Continuous Current	I_S				-10	A
Pulsed Current ³	I_{SM}				-24	
Forward Voltage ¹	V_{SD}	$I_F = -10A, V_{GS} = 0V$			-1.2	V

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

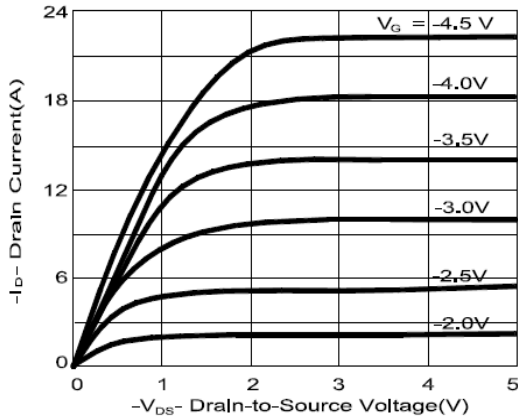
²Independent of operating temperature.

³Pulse width limited by maximum junction temperature.

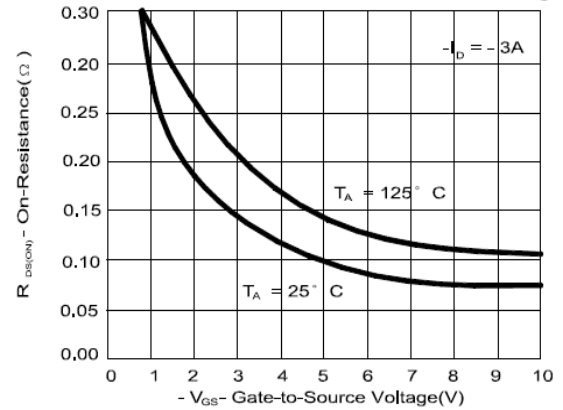
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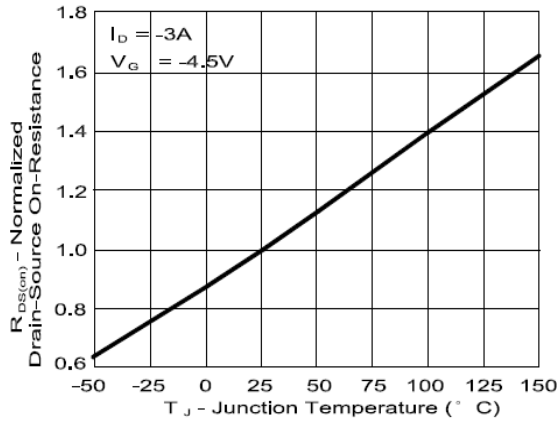
Typical output characteristics



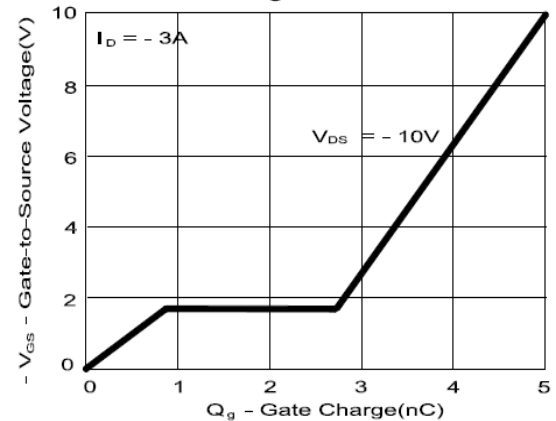
On-Resistance Variation with Gate-to-Source Voltage



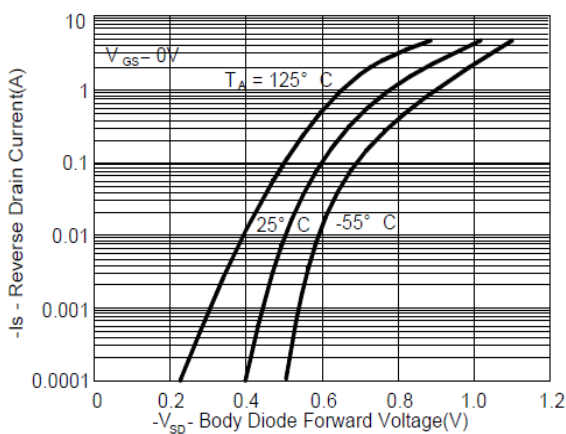
Normalized on-Resistance v.s. Junction Temperature



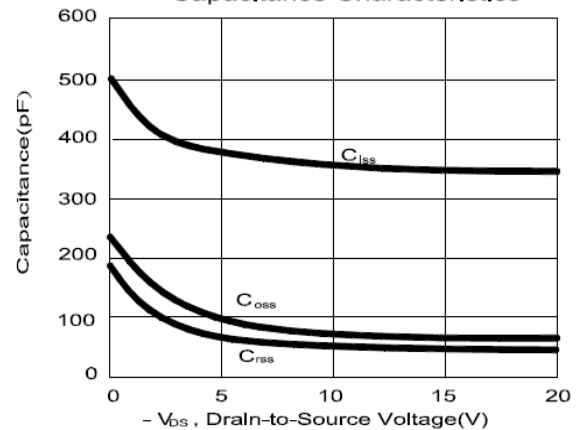
Gate Charge Characteristics



Body Diode Forward Voltage Variation with Source Current and Temperature



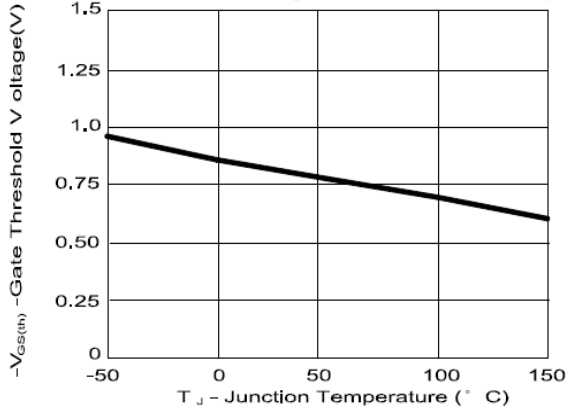
Capacitance Characteristics



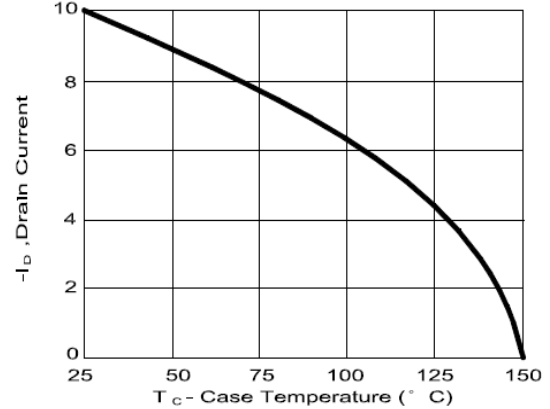
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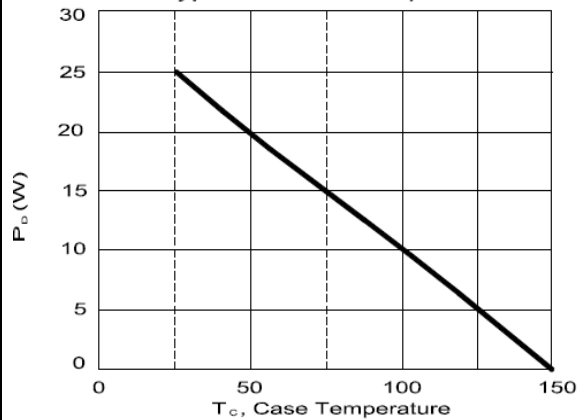
Gate Threshold Voltage v.s. Junction Temperature



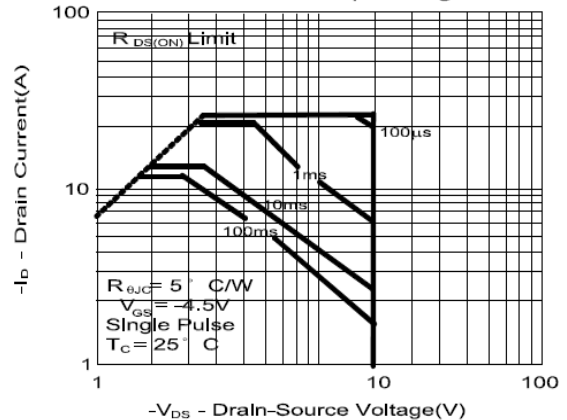
Maximum Drain Current v.s. Case Temperature



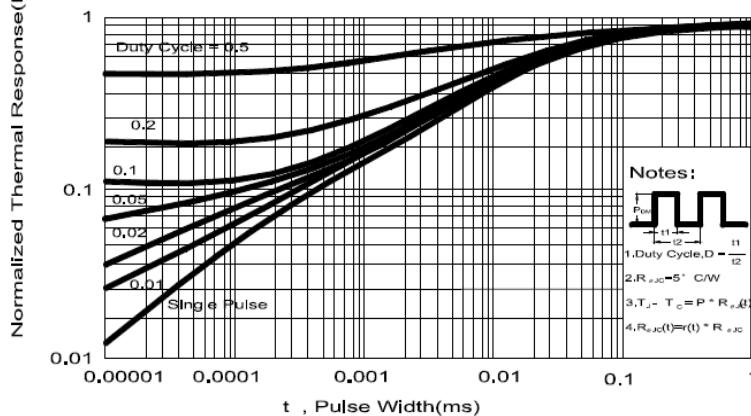
Typical Power Dissipation



Maximum Safe Operating Area



Effective Transient Thermal Impedance



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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				

