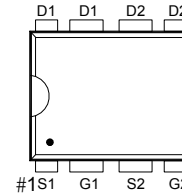
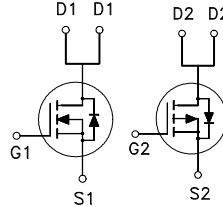


PRODUCT SUMMARY

	$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
N-Channel	30	25m Ω	7A
P-Channel	-30	45m Ω	-5A



G : GATE
D : DRAIN
S : SOURCE

100% Rg tested
100% UIS tested

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

PARAMETERS/TEST CONDITIONS		SYMBOL	N-Channel	P-Channel	UNITS
Drain-Source Voltage		V _{DS}	30	-30	V
Gate-Source Voltage		V _{GS}	±20	±20	V
Continuous Drain Current	T _C = 25 °C	I _D	7	-5	A
	T _C = 70 °C		6	-4	
Pulsed Drain Current ¹		I _{DM}	20	-20	
Avalanche Current		I _{AS}	18	-18	
Avalanche Energy	L = 0.1mH	E _{AS}	19		mJ
Power Dissipation	T _C = 25 °C	P _D	2.5		W
	T _C = 70 °C		1.6		
Junction & Storage Temperature Range		T _J , T _{stg}	-55 to 150		°C

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient	$R_{\theta JA}$		50	$^\circ\text{C} / \text{W}$

¹Pulse width limited by maximum junction temperature.

²Duty cycle $\leq 1\%$

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 = 250μA	N-Ch	30			V
		V _{GS} = 0V, I _D = -250μA	P-Ch	-30			
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	N-Ch	1	1.5	2.5	
		V _{DS} = V _{GS} , I _D = -250μA	P-Ch	-1	-1.5	-2.5	

Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$	N-Ch			± 100	nA
		$V_{DS} = 0V, V_{GS} = \pm 20V$	P-Ch			± 100	
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 24V, V_{GS} = 0V$	N-Ch			1	μA
		$V_{DS} = -24V, V_{GS} = 0V$	P-Ch			-1	
		$V_{DS} = 20V, V_{GS} = 0V, T_J = 55^\circ C$	N-Ch			10	
		$V_{DS} = -20V, V_{GS} = 0V, T_J = 55^\circ C$	P-Ch			-10	
On-State Drain Current ¹	$I_{D(ON)}$	$V_{DS} = 5V, V_{GS} = 10V$	N-Ch	20			A
		$V_{DS} = -5V, V_{GS} = -10V$	P-Ch	-20			
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = 4.5V, I_D = 6A$	N-Ch		25	37	m Ω
		$V_{GS} = -4.5V, I_D = -4A$	P-Ch		58	80	
		$V_{GS} = 10V, I_D = 7A$	N-Ch		18	25	
		$V_{GS} = -10V, I_D = -5A$	P-Ch		34	45	
Forward Transconductance ¹	g_{fs}	$V_{DS} = 5V, I_D = 7A$	N-Ch		19		S
		$V_{DS} = -5V, I_D = -5A$	P-Ch		11		

DYNAMIC

Input Capacitance	C_{iss}	N-Channel $V_{GS} = 0V, V_{DS} = 10V, f = 1MHz$ P-Channel	N-Ch		790		pF
			P-Ch		690		
Output Capacitance	C_{oss}	$V_{GS} = 0V, V_{DS} = -10V, f = 1MHz$	N-Ch		175		
			P-Ch		310		
Reverse Transfer Capacitance	C_{rss}	$V_{GS} = 0V, V_{DS} = -10V, f = 1MHz$	N-Ch		65		
			P-Ch		75		
Gate Resistance	R_g	$V_{GS} = 0V, V_{DS} = 0V, f = 1MHz$	N-Ch		2		Ω
			P-Ch		6.25		

Total Gate Charge ²	Q_g	N-Channel $V_{DS} = 0.5V_{(BR)DSS}, V_{GS} = 10V,$ $I_D = 7A$	N-Ch P-Ch	16 14			
Gate-Source Charge ²	Q_{gs}	P-Channel $V_{DS} = 0.5V_{(BR)DSS}, V_{GS} = -10V,$ $I_D = -5A$	N-Ch P-Ch	2.5 2.2			nC
Gate-Drain Charge ²	Q_{gd}		N-Ch P-Ch	2.1 1.9			
Turn-On Delay Time ²	$t_{d(on)}$	N-Channel $V_{DD} = 10V$	N-Ch P-Ch	2.2 6.7	4.4 13.4		
Rise Time ²	t_r	$I_D \cong 1A, V_{GS} = 10V, R_{GEN} = 6\Omega$	N-Ch P-Ch	7.5 9.7	15 19.4		
Turn-Off Delay Time ²	$t_{d(off)}$	P-Channel $V_{DD} = -10V$	N-Ch P-Ch	11.8 19.8	21.3 35.6		nS
Fall Time ²	t_f	$I_D \cong -1A, V_{GS} = -10V, R_{GEN} = 6\Omega$	N-Ch P-Ch	3.7 12.3	7.4 22.2		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_J = 25^\circ C$)							
Continuous Current	I_S		N-Ch P-Ch			1.3 -1.3	
Pulsed Current ³	I_{SM}		N-Ch P-Ch			2.6 -2.6	A
Forward Voltage ¹	V_{SD}	$I_F = 7A, V_{GS} = 0V$ $I_F = -5A, V_{GS} = 0V$	N-Ch P-Ch			1 -1	V

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

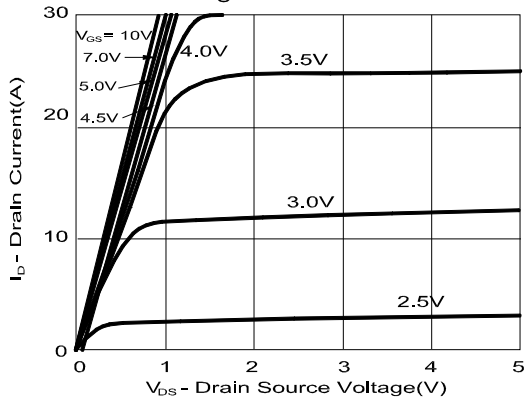
²Independent of operating temperature.

³Pulse width limited by maximum junction temperature.

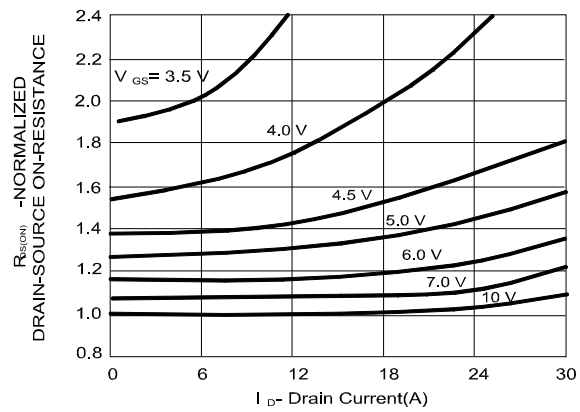
REMARK: THE PRODUCT MARKED WITH "P2503NPG", DATE CODE or LOT #

N-CHANNEL

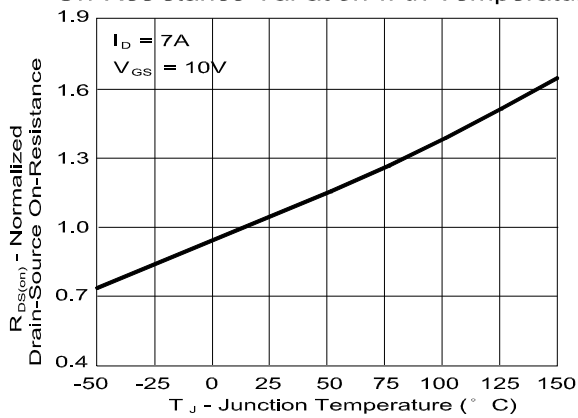
On-Region Characteristics



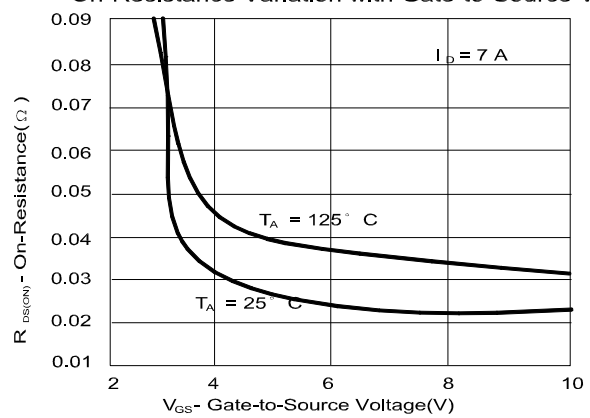
On-Resistance Variation with Drain Current and Gate Voltage



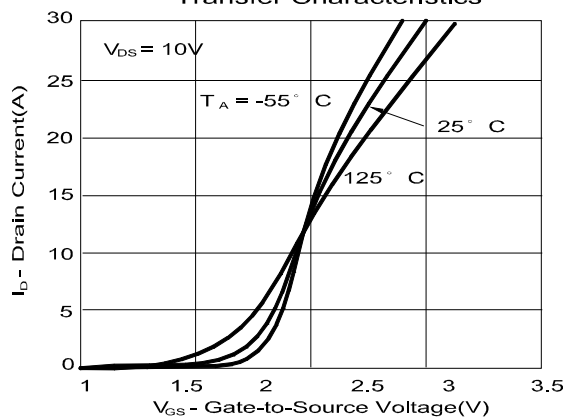
On-Resistance Variation with Temperature



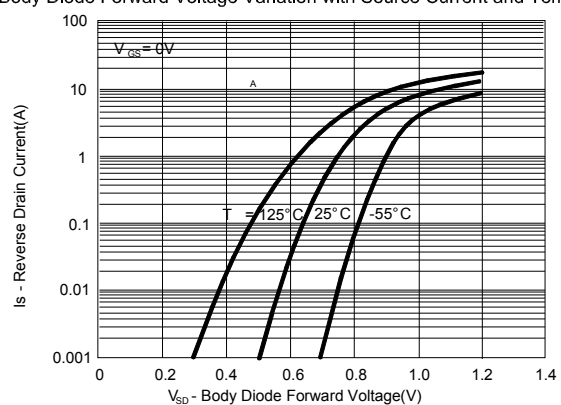
On-Resistance Variation with Gate-to-Source Voltage

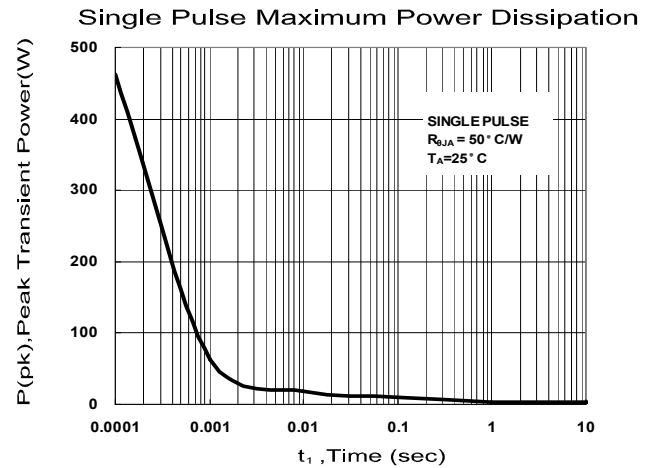
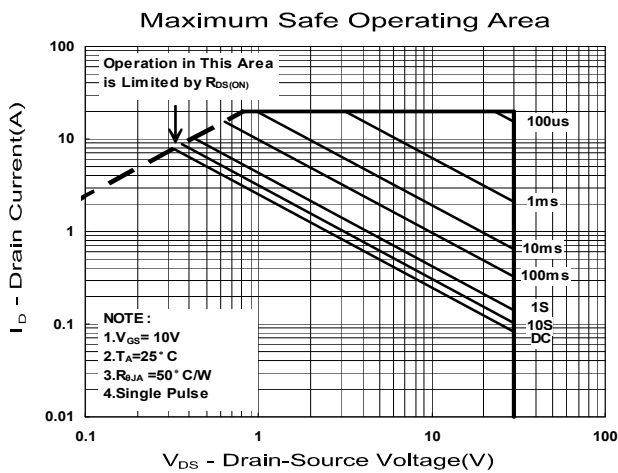
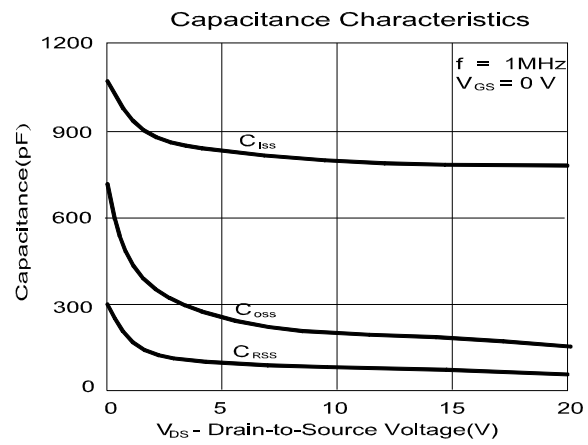
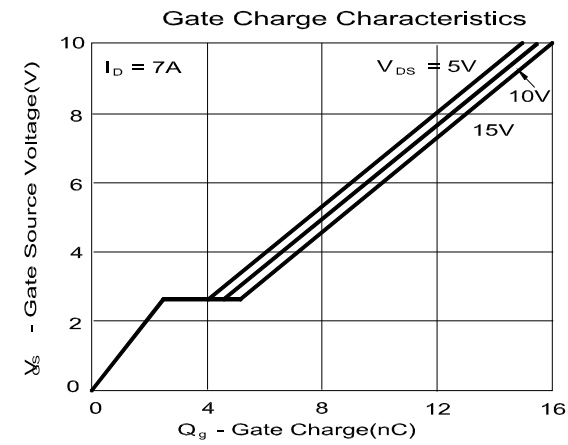


Transfer Characteristics



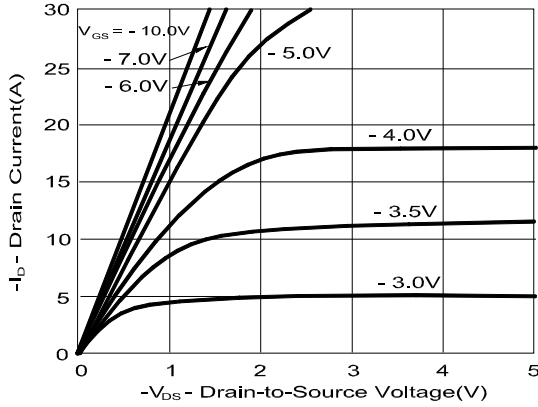
Body Diode Forward Voltage Variation with Source Current and Temperature



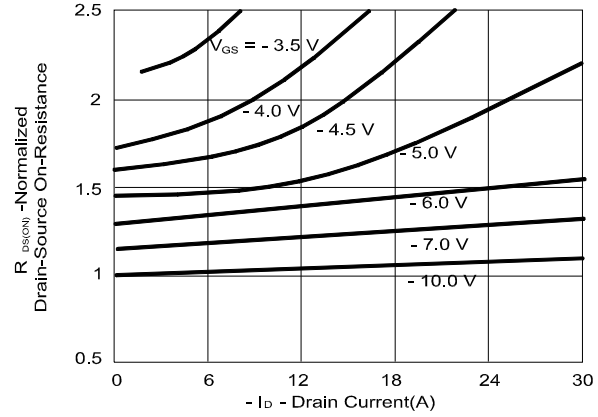


P-CHANNEL

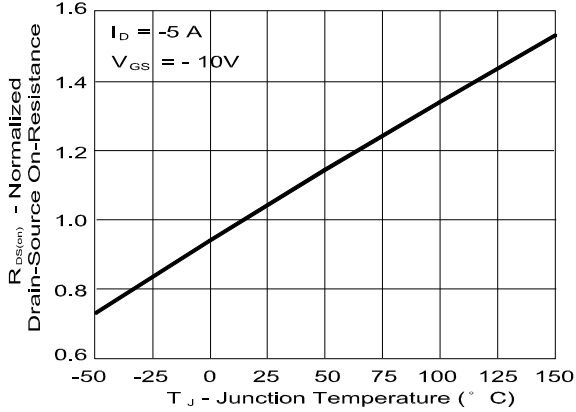
On-Region Characteristics



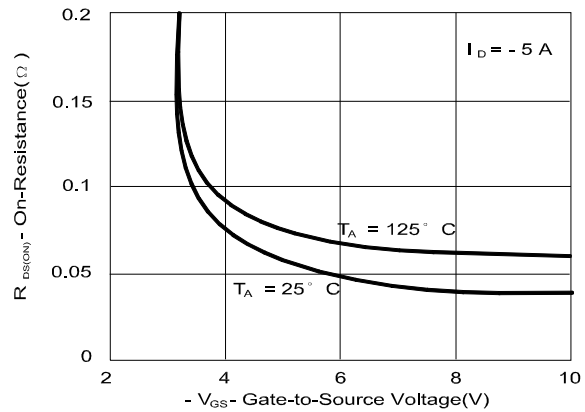
On-Resistance Variation with Drain Current and Gate Voltage



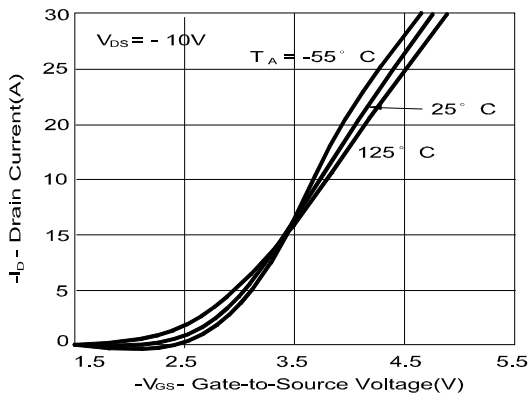
On-Resistance Variation with Temperature



On-Resistance Variation with Gate-to-Source Voltage



Transfer Characteristics



Body Diode Forward Voltage Variation with Source Current and Temperature

