STM5853

P Channel Mode MOSFET with Schottky

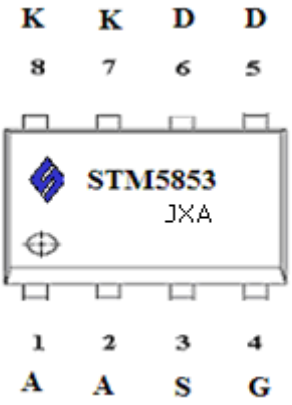
-3.6A

DESCRIPTION

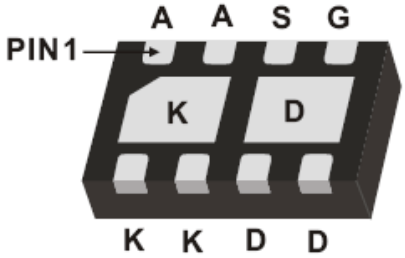
STM5853 is the P-Channel logic enhancement mode power field effect transistors with Schottky Diode. The MOSFET is produced using high cell density, DMOS trench technology. This high density process is especially tailored to minimize on-state resistance. This device is particularly suited for charging switch for cellular phone and other battery powered circuits

PIN CONFIGURATION

DFN8

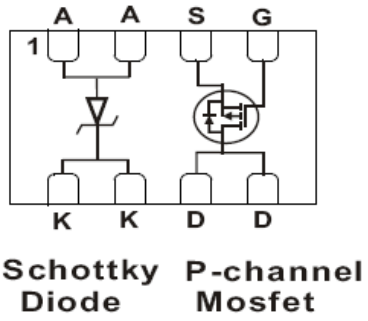


J: Part Marking
X: Year Code
A: Process Code



FEATURE

- -20V/-3.4A, $R_{DS(ON)}$ = 77m-ohm(Typ.) @VGS = -4.5V
- -20V/-2.4A, $R_{DS(ON)}$ = 98m-ohm @VGS = -2.5V
- -20V/-1.7A, $R_{DS(ON)}$ = 135m-ohm @VGS = -1.8V
- 20V/1.0A, Vf =0.46V @ 0.5A
- Super high density cell design for extremely low $R_{DS(ON)}$



ORDERING INFORMATION

Part Number	Package	Part Marking
STM5853QF8RG	DFN8	SYA

※ Week Code Code : A ~ Z(1~26) ; a ~ z(27~52)
※ STM5853QF8RG QF8 : QFN8; R: Tape Reel ; G: Pb – Free

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ABSOULTE MAXIMUM RATINGS (Ta = 25℃ Unless otherwise noted)

Parameter		Symbol	Typical	Unit
Drain-Source Voltage		V_{DSS}	-20	V
Reverse Voltage (Schottky)		V_{KA}	20	V
Gate-Source Voltage		V_{GSS}	+/-12	V
Continuous Drain Current (TJ=150℃)	TA=25℃ TA=70℃	I_D	-3.6 -2.8	A
Pulsed Drain Current		I_{DM}	-15	A
Continuous Source Current (Diode Conduction)		I_S	-1.8	A
Power Dissipation	T_A=25℃ T_A=70℃	P_D	2.1 1.1	W
Operation Junction Temperature		T_J	150	℃
Storgae Temperature Range		T_{STG}	-55/150	℃
Thermal Resistance-Junction to Ambient		$R_{\theta JA}$	60	℃/W

All data are for MOSFET unless otherwise noted.

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ELECTRICAL CHARACTERISTICS (Ta = 25℃ unless otherwise noted)

MOSFET

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_D=-250uA	-20			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=-250uA	-0.35		-0.8	V
Gate Leakage Current	I_{GSS}	V_{DS}=0V,V_{GS}=+/-12V			100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-20V,V_{GS}=0V			-1	uA
		V_{DS}=-20V, V_{GS} =0V T_j=55℃			-5	
On-State Drain Current	$I_{D(on)}$	V_{DS}≦-5V, V_{GS} =-4.5V	-6.0			A
Drain-source On-Resistance	$R_{DS(on)}$	V_{GS} =-4.5V, I_D=3.4A V_{GS} =-2.5V, I_D=-2.4A V_{GS} =-1.8V, I_D=-1.7A		0.077 0.098 0.135		Ω
Forward Transconductance	g_{fs}	V_{DS} =-5V, I_D=-2.8V		6		S
Diode Forward Voltage	V_{SD}	I_S=-1.6A,V V_{GS}=0V		-0.8	-1.2	V
Dynamic						
Total Gate Charge	Q_g	V_{DS}=-6V, V_{GS} =-4.5V I_D=-2.8A		4.8	8	nC
Gate-Source Charge	Q_{gs}			1.0		
Gate-Drain Charge	Q_{gd}			1.0		
Input Capacitance	C_{iss}	V_{DS}=-6V, V_{GS} =0V f=1MHz		485		pF
Output Capacitance	C_{oss}			85		
Reverse Transfer Capacitance	C_{rss}			40		
Turn-On Time	$t_{d(on)}$	V_{DD}=-6V,R_L=6Ω I_D=-1A,V_{GEN}=-4.5V R_G=6Ω		10	25	nS
	t_r			13	60	
Turn-Off Time	$t_{d(off)}$			18	70	
	t_f			15	60	

SCHOTTKY

Forward Voltage Drop	V_F	I_F=0.5A		0.38	0.46	V
		I_F=0.5A, T_j=125C		0.33	0.4	V
Max Reverse Leakage Current	I_R	V_R=20V			100	nA
		V_R=20V, T_j=85C			1000	
Junction Capacitance	C_T	V_R=10V		31		pF

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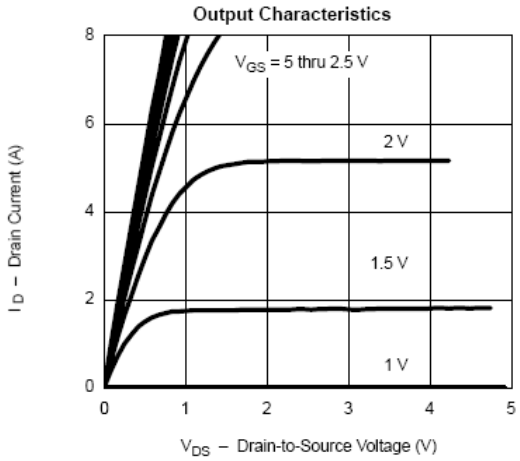

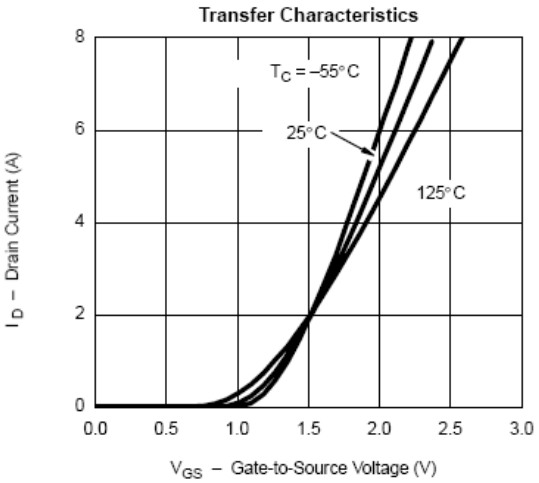

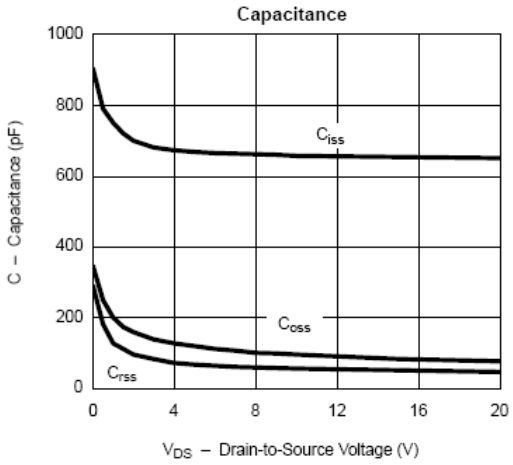

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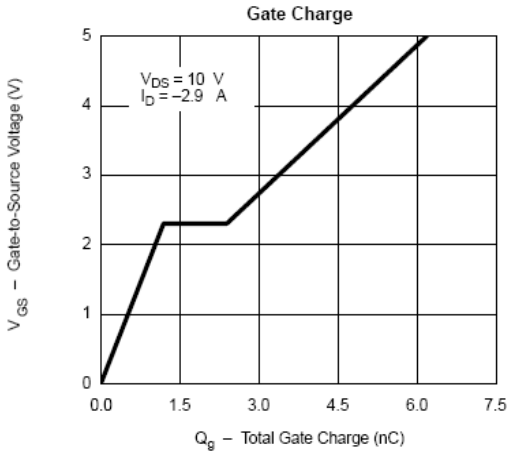

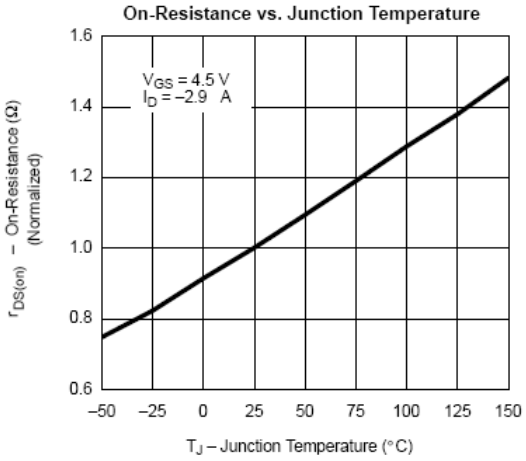

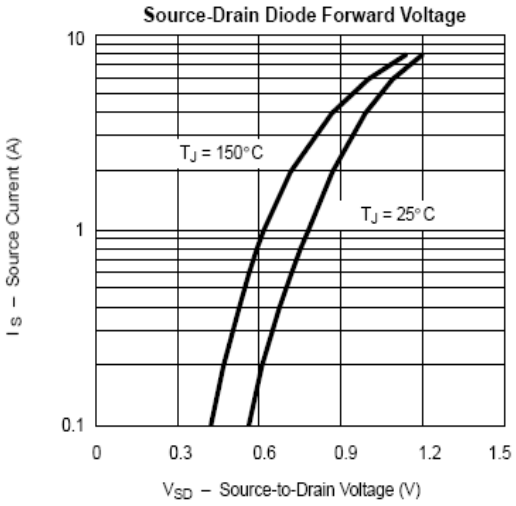

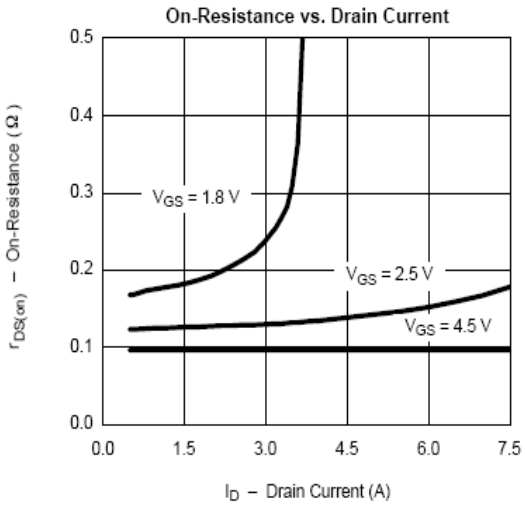

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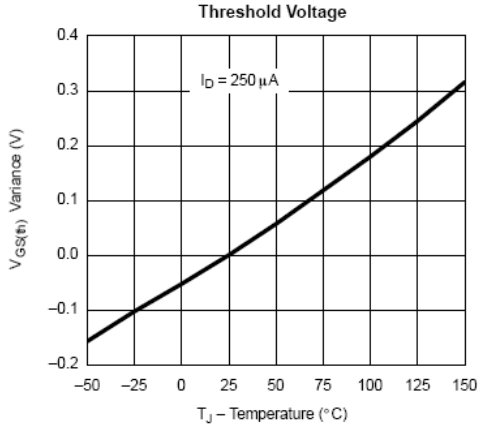
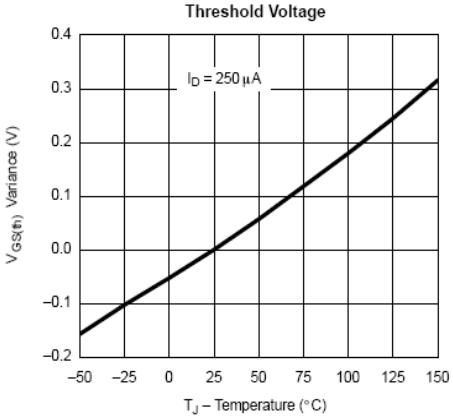
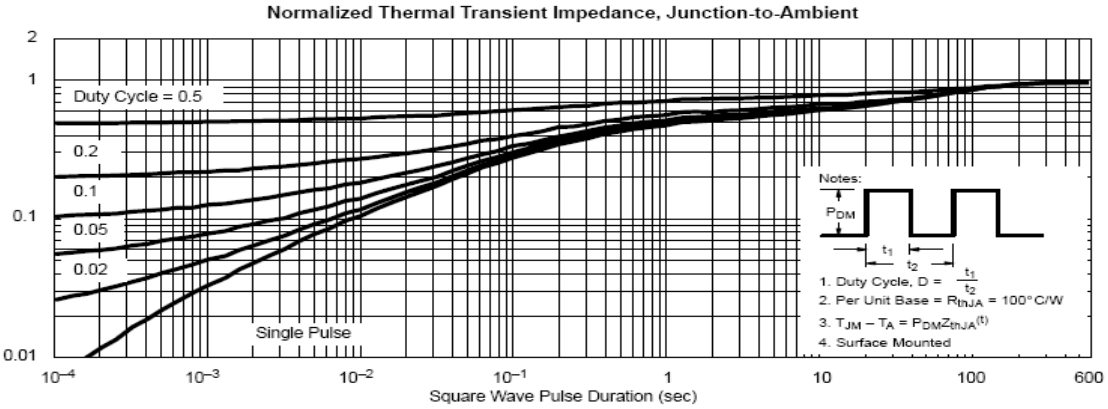
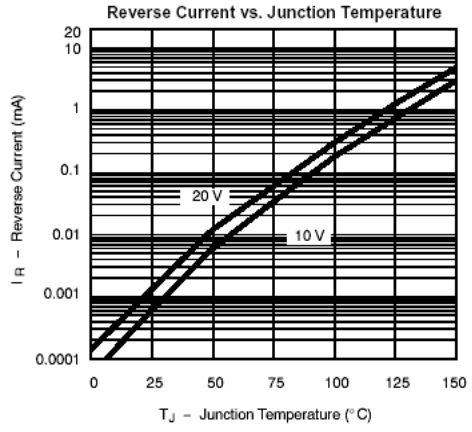
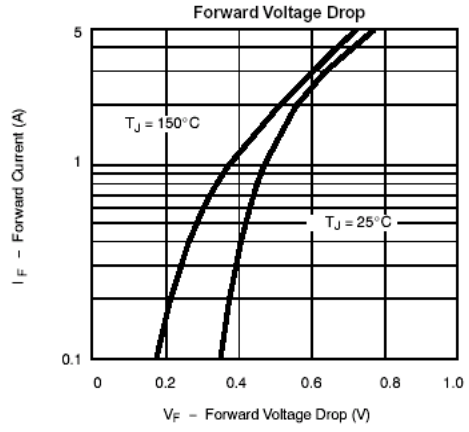






Schottky





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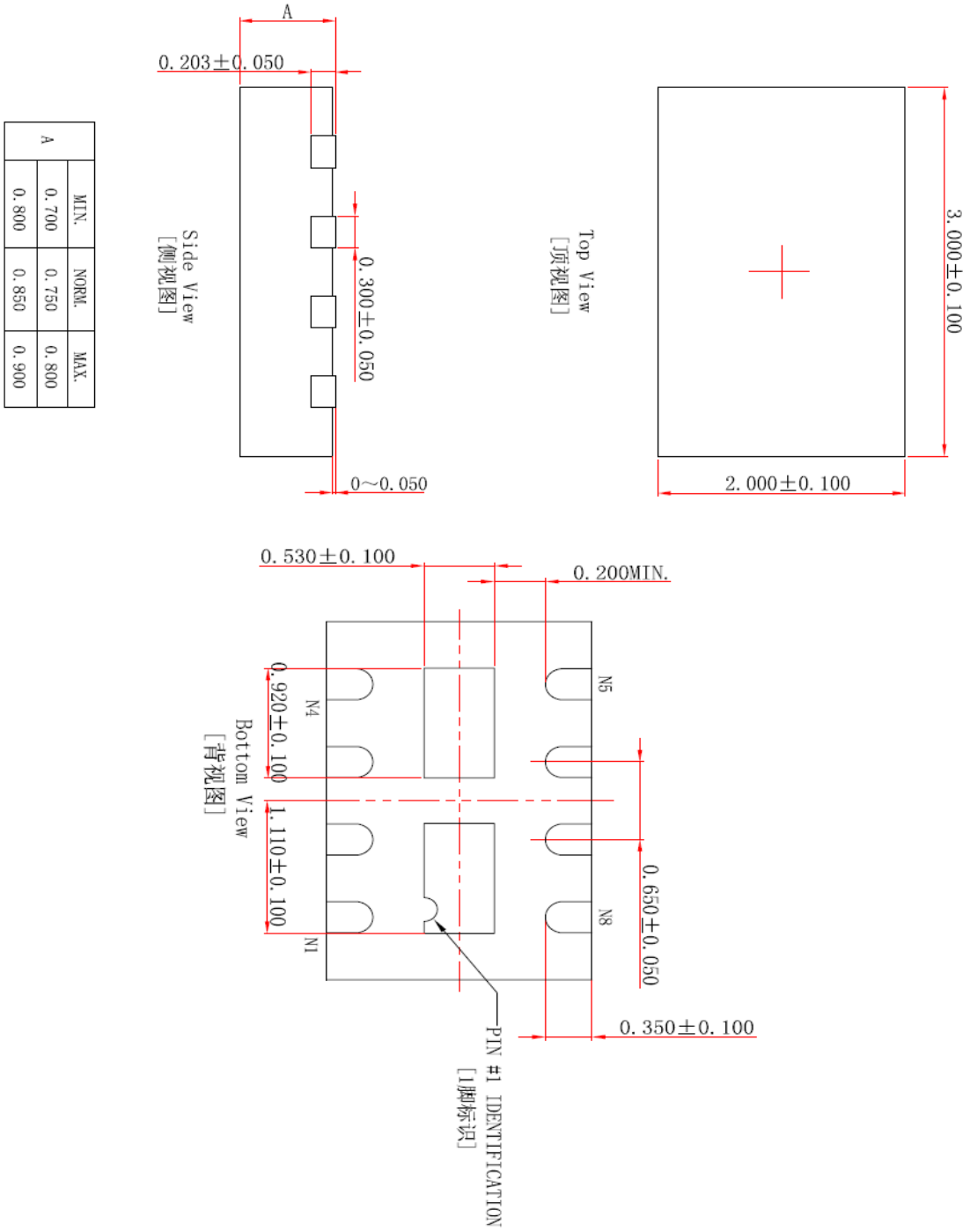
DFN8 PACKAGE OUTLINE



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