



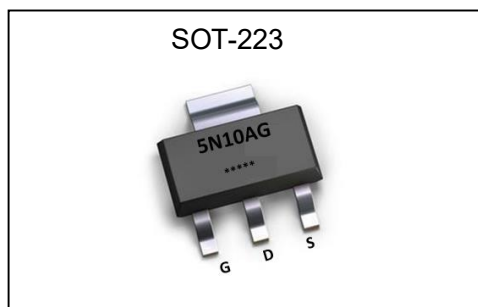
General Description :

The PJM10H05NST uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. It can be used in a wide variety of applications. The package form is SOT-223, which accords with the RoHS standard.

V_{DSS}	100	V
I_D	5	A
P_D	3	W
$R_{DS(ON)type}$	200	m Ω

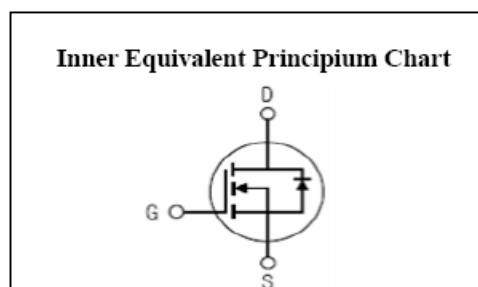
Features :

- $R_{DS(ON)} < 300m\Omega$ @ $V_{GS}=10V$ (Typ : 200m Ω)
- $V_{DS}=100V$, $I_D=5A$
- Fully characterized avalanche voltage and current
- Excellent package for good heat dissipation



Applications :

- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible power supply



Absolute Rating ($T_c= 25^{\circ}C$ unless otherwise specified) :

Symbol	Parameter	Rating	Units
V_{DSS}	Drain-to-Source Voltage	100	V
I_D	Continuous Drain Current	5	A
I_{DM}	Pulsed Drain Current	20	A
V_{GS}	Gate-to-Source Voltage	± 20	V
P_D	Power Dissipation	3	W
E_{AS}	Single pulse avalanche energy ⁵	20	mJ
T_J , T_{stg}	Operating Junction and Storage Temperature Range	175 , -55 to 175	$^{\circ}C$



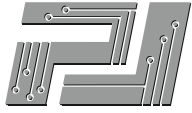
Electrical Characteristics (Tc= 25°C unless otherwise specified) :

OFF Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
V _{DSS}	Drain to Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	100	--	--	V
I _{DSS}	Drain to Source Leakage Current	V _{DS} =100V, V _{GS} = 0V, T _a = 25°C	--	--	1.0	μA
I _{GSS(F)}	Gate to Source Forward Leakage	V _{GS} =+20V	--	--	0.1	μA
I _{GSS(R)}	Gate to Source Reverse Leakage	V _{GS} =-20V	--	--	-0.1	μA

ON Characteristics ³						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
R _{DS(ON)}	Drain-to-Source On-Resistance	V _{GS} =10V, I _D =3A	--	200	300	mΩ
V _{GS(TH)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	1.0	1.6	3.0	V
Pulse width tp≤380μs, δ≤2%						

Dynamic Characteristics ⁴						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
g _{fs}	Forward Transconductance	V _{DS} =5V, I _D =1A	1	--	--	S
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =50V f=1.0MHz	--	190	--	pF
C _{oss}	Output Capacitance		--	23	--	
C _{rss}	Reverse Transfer Capacitance		--	13	--	

Resistive Switching Characteristics ⁴						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
t _{d(ON)}	Turn-on Delay Time	V _{DD} =50V, R _L =39Ω, I _D =1.3A V _{GS} =10V, R _G =3Ω	--	6	--	ns
t _r	Rise Time		--	10	--	
t _{d(OFF)}	Turn-Off Delay Time		--	10	--	
t _f	Fall Time		--	6	--	
Q _g	Total Gate Charge	V _{DD} =50V, I _D =1.3A V _{GS} =10V	--	5.2	--	nC
Q _{gs}	Gate to Source Charge		--	0.75	--	
Q _{gd}	Gate to Drain ("Miller") Charge		--	1.4	--	



Source-Drain Diode Characteristics

Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
I_S	Continuous Source Current ² (Body Diode)		--	--	5	A
V_{SD}	Diode Forward Voltage ³	$I_S=5A, V_{GS}=0V$	--	--	1.5	V

Symbol	Parameter	Typ.	Units
$R_{\theta JC}$	Junction-to-Case ²	42	°C/W

1: Repetitive Rating: Pulse width limited by maximum junction temperature.

2: Surface Mounted on FR4 Board, $t \leq 10\text{sec}$.

3: Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$.

4: Guaranteed by design, not subject to production

5: EAS condition : $T_J=25^\circ\text{C}, V_{DD}=50V, V_G=10V, L=0.5\text{mH}, R_g=25\Omega$

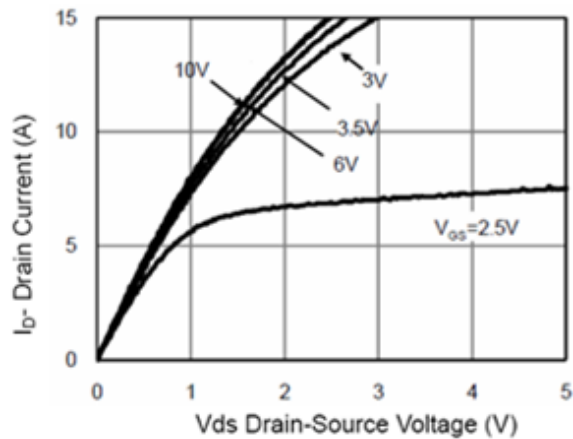


Figure 1 Output Characteristics

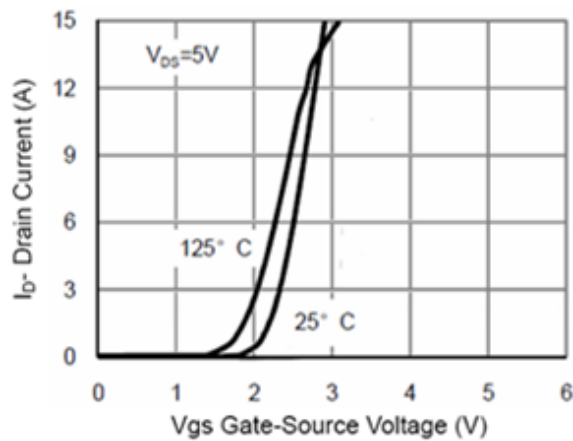


Figure 2 Transfer Characteristics

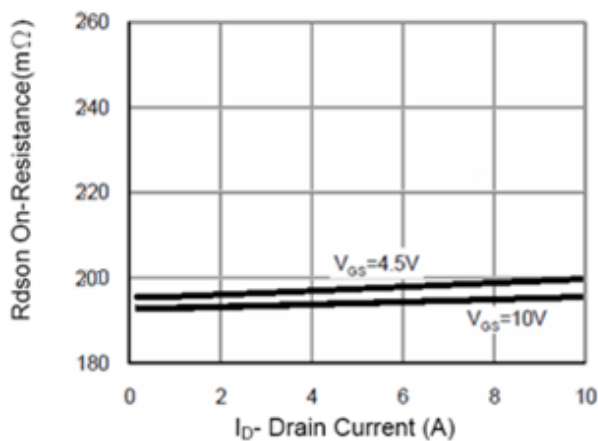


Figure 3 $R_{DS(on)}$ - Drain Current

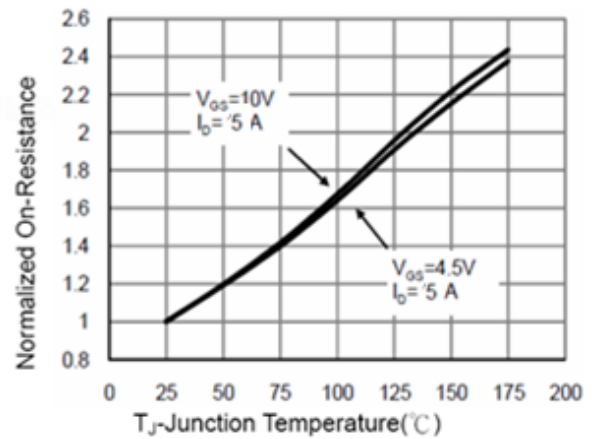


Figure 4 $R_{DS(on)}$ -Junction Temperature

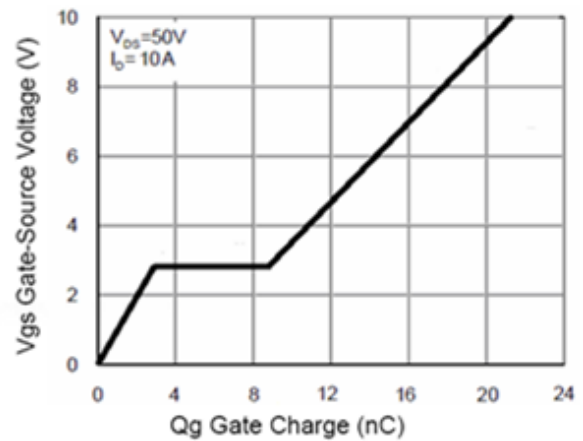


Figure 5 Gate Charge

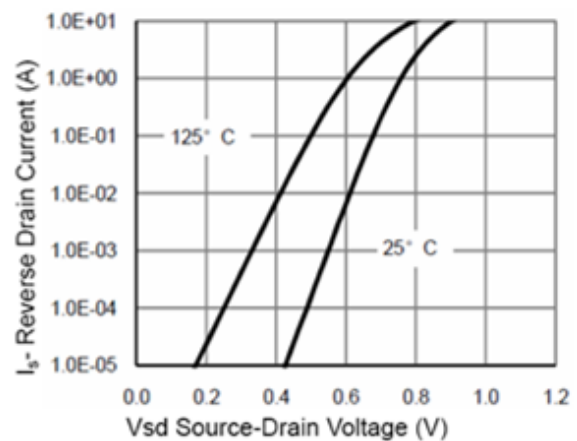


Figure 6 Source- Drain Diode Forward

