



PJM10H05NST

N-Channel Enhancement Mode Power MOSFET

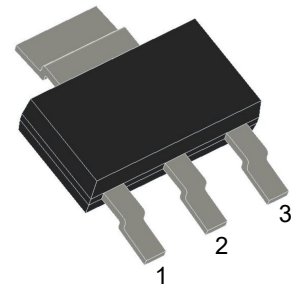
Features

- High density cell design for ultra low $R_{DS(on)}$
- Excellent package for good heat dissipation
- $V_{DS} = 100V$, $I_D = 5A$
 $R_{DS(ON)} < 300m\Omega$ @ $V_{GS} = 10V$

Application

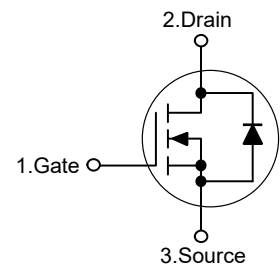
- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible power supply

SOT-223



1. Gate 2.Drain 3.Source

Schematic Diagram



Absolute Maximum Ratings

Ratings at 25°C Case temperature unless otherwise specified.

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous	I_D	5	A
Drain Current-Pulsed ^{Note1}	I_{DM}	20	A
Single pulse avalanche energy ^{Note4}	E_{AS}	20	mJ
Avalanche energy, Repetitive ^{Note1}	E_{AR}	4	mJ
Avalanche Current ^{Note1}	I_{AR}	1.2	A
Maximum Power Dissipation	P_D	3	W
Junction Temperature	T_J	175	°C
Storage Temperature Range	T_{STG}	-55 to +175	°C

Thermal Characteristics

Maximum Junction-to-Case ^{Note2}	$R_{\theta JC}$	42	°C/W
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Electrical Characteristics

(T_C=25°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250μA	100	--	--	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =100V, V _{GS} =0V	--	--	1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	--	--	±100	nA
Gate Threshold Voltage ^{Note3}	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1	1.6	3	V
Drain-Source On-Resistance ^{Note3}	R _{DS(on)}	V _{GS} =10V, I _D =3A	--	200	300	mΩ
Forward Transconductance ^{Note3}	g _{FS}	V _{DS} =5V, I _D =1A	1	--	--	S
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =50V, V _{GS} =0V, f=1MHz	--	190	--	pF
Output Capacitance	C _{oss}		--	23	--	pF
Reverse Transfer Capacitance	C _{rss}		--	13	--	pF
Switching Characteristics						
Turn-on Delay Time	t _{d(on)}	V _{DD} =50V, I _D =1.3A V _{GS} =10V, R _G =3Ω	--	6	--	nS
Turn-on Rise Time	t _r		--	10	--	nS
Turn-off Delay Time	t _{d(off)}		--	10	--	nS
Turn-off Fall Time	t _f		--	6	--	nS
Total Gate Charge	Q _g	V _{DD} =50V, I _D =1.3A V _{GS} =10V	--	5.2	--	nC
Gate-Source Charge	Q _{gs}		--	0.75	--	nC
Gate-Drain Charge	Q _{gd}		--	1.4	--	nC
Source-Drain Diode Characteristics						
Diode Forward Voltage ^{Note3}	V _{SD}	V _{GS} =0V, I _S =5A	--	--	1.5	V
Diode Forward Current ^{Note2}	I _S		--	--	5	A

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

2. Surface Mounted on FR4 Board, t ≤ 10 sec.

3. Pulse Test: Pulse width ≤ 300μs, duty cycle ≤ 2%

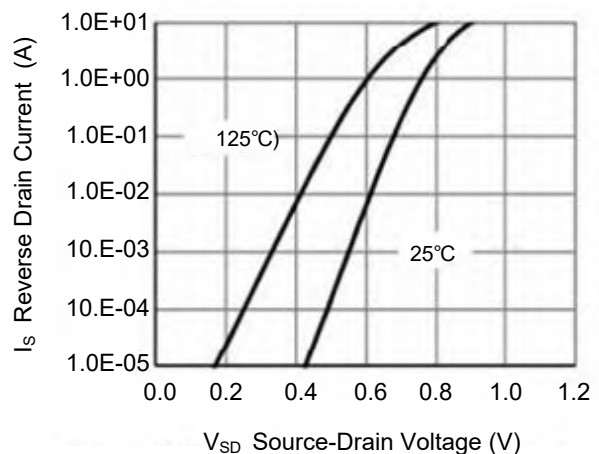
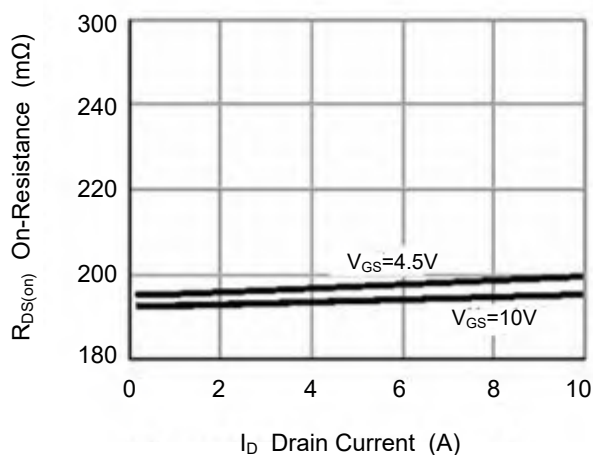
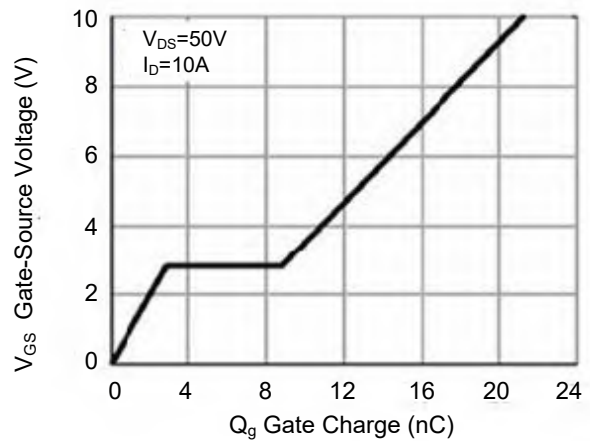
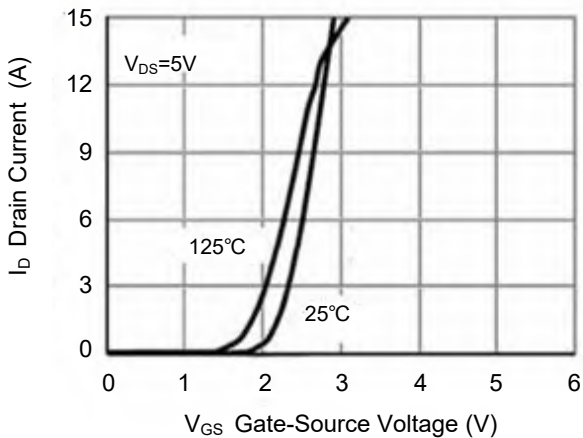
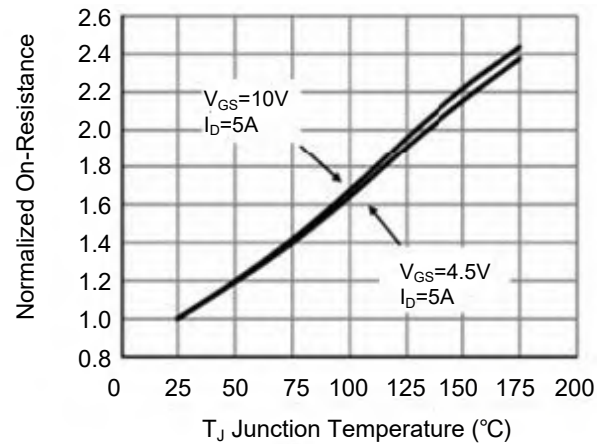
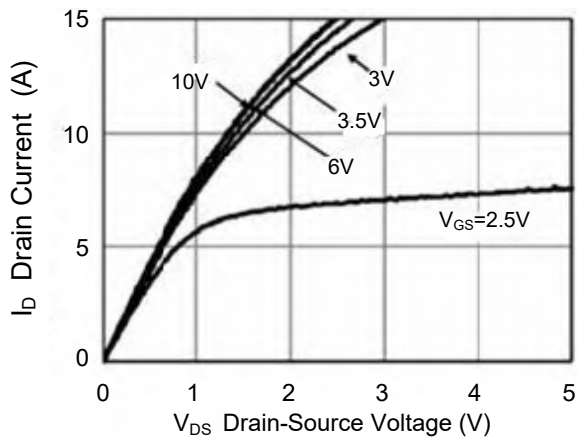
4. E_{AS} Condition: T_J=25°C, V_{DD}=50V, V_{GS}=10V, L=0.5mH, R_g=25Ω



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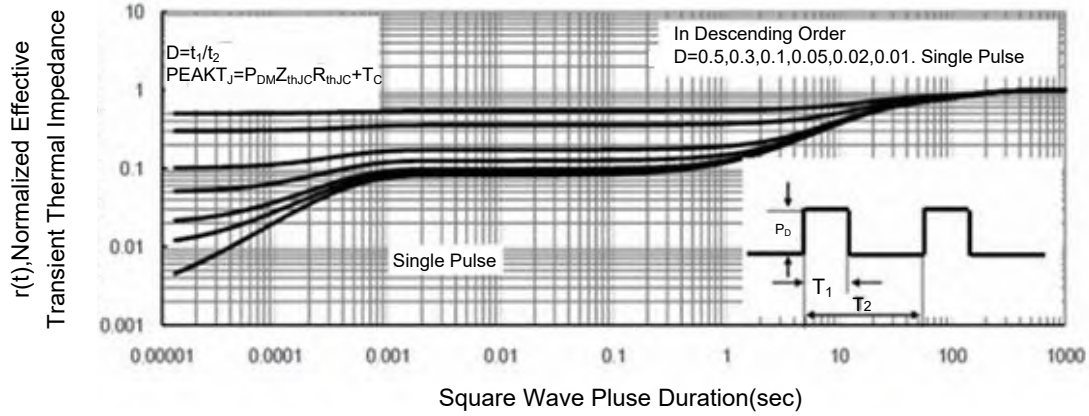
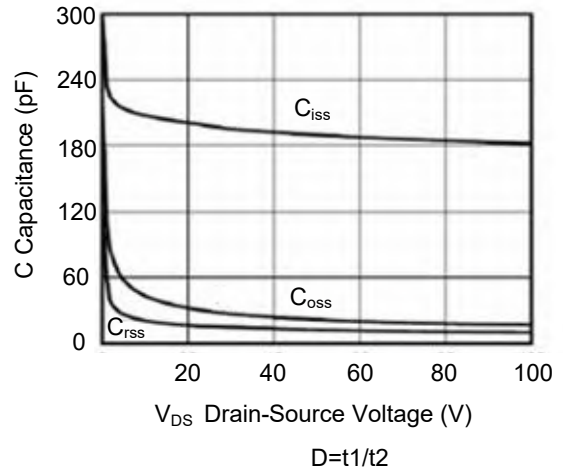
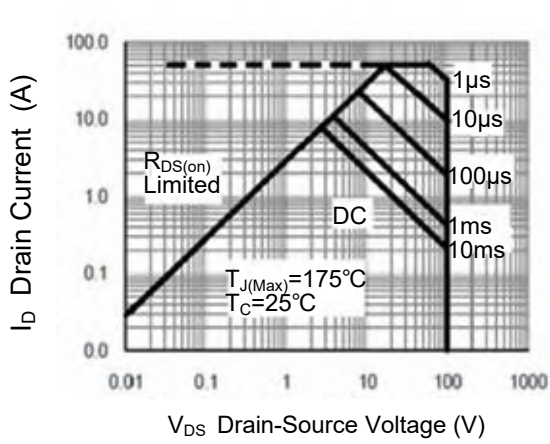
Typical Characteristic Curves





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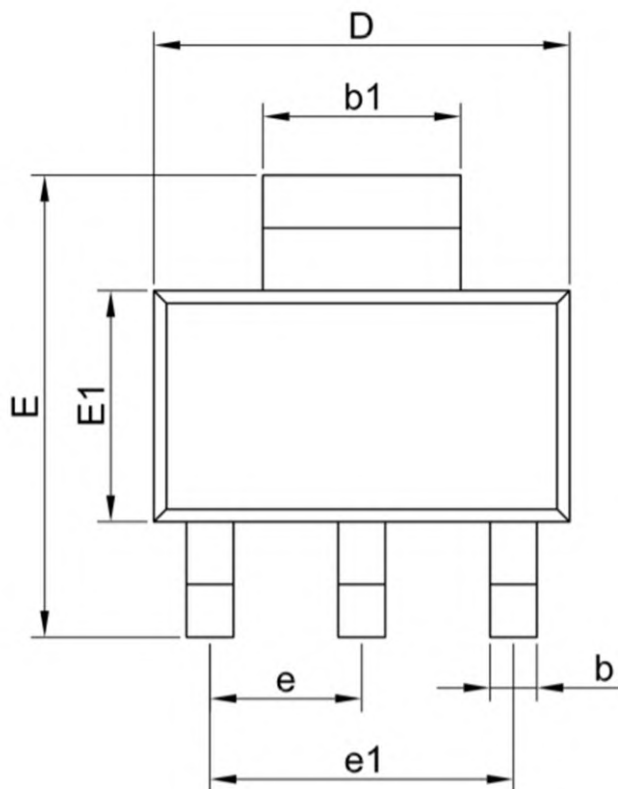
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Package Outline

SOT-223

Dimensions in mm



SYMBOL	MIN	NOM	MAX
A	1.55	—	1.80
A1	0.02	—	0.12
A2	1.45	1.60	1.75
A3	0.60	0.70	0.80
b	0.60	—	0.80
b1	2.90	—	3.10
c	0.24	—	0.32
D	6.20	6.30	6.50
E	6.70	7.00	7.30
E1	3.30	3.50	3.70
e	2.299REF		
e1	4.598REF		
L	0.90MIN		
L2	0.30BSC		
θ	0°	—	10°
θ_1	10°	12°	14°
θ_2	10°	12°	14°

