STN1012

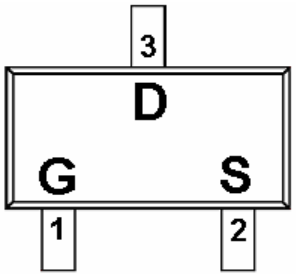
Dual N Channel Enhancement Mode MOSFET

0.65A

DESCRIPTION

STN1012 is the N-Channel enhancement mode power field effect transistors are produced using high cell density, DMOS trench technology. This high density process is especially tailored to minimize on-state resistance and provide superior switching performance. These devices are particularly suited for low voltage applications such as notebook computer power management and other bettery powered circuits where high-side switching, low in-line power loss, and resistance to transients are needed.

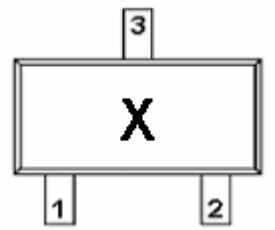
PIN CONFIGURATION
SOT-523 / SC-89

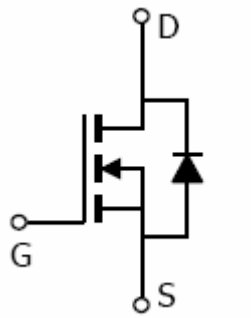


FEATURE

- 20V/0.65A, $R_{DS(ON)}$ =380ohm@V_{GS} =4.5V
- 20V/0.55A, $R_{DS(ON)}$ =450ohm@V_{GS} =2.5V
- 20V/0.45A, $R_{DS(ON)}$ =800ohm@V_{GS} =1.8V
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional low on-resistance and maximum DC current capability
- SOT-523 / SC89 package design

PART MARKING





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

Parameter		Symbol	Typical	Unit
Drain-Source Voltage		V_{DSS}	20	V
Gate-Source Voltage		V_{GSS}	+/-12	V
Continuous Drain Current (T_J=150℃)	T_A=25℃	I_D	0.65	A
	T_A=80℃		0.45	
Pulsed Drain Current		I_{DM}	1.0	A
Continuous Source Current (Diode Conduction)		I_S	0.3	A
Power Dissipation	T_A=25℃	P_D	0.27	W
	T_A=70℃		0.16	
Operation Junction Temperature		T_J	-55/150	℃
Storage Temperature Range		T_{STG}	-55/150	℃

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ELECTRICAL CHARACTERISTICS (Ta = 25℃ Unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_D=250uA	20			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=VGS,I_D=250uA	0.35		1.0	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}≦4.5V,V_{GS}=5V	0.7			A
Drain-source On-Resistance	$R_{DS(on)}$	V_{GS}=4.5V,I_D=0.65A		260	380	mΩ
		V_{GS}=2.5V,I_D=0.55A		320	450	
		V_{GS}=1.8V,I_D=0.55A		420	800	
Forward Transconductance	g_{fs}	V_{DS}=10V,I_D=0.4A		1.0		S
Diode Forward Voltage	V_{SD}	I_S=0.15A,V_{GS}=0V		0.8	1.2	V
DYNAMIC						
Total Gate Charge	Q_g	V_{DS}=10V,V_{GS}=4.5V,V_{DS}=0.6A		1.2	1.5	nC
Gate-Source Charge	Q_{gs}			0.2		
Gate-Drain Charge	Q_{gd}			0.3		
Turn-On Time	$T_{d(on)}$	V_{DD}=10V, RL=10Ω, I_D=0.5A, V_{GEN}=4.5V, RG=6Ω		5	10	nS
	t_r			8	15	
Turn-Off Time	$T_{d(off)}$			10	18	
	t_f			1.2	2.8	

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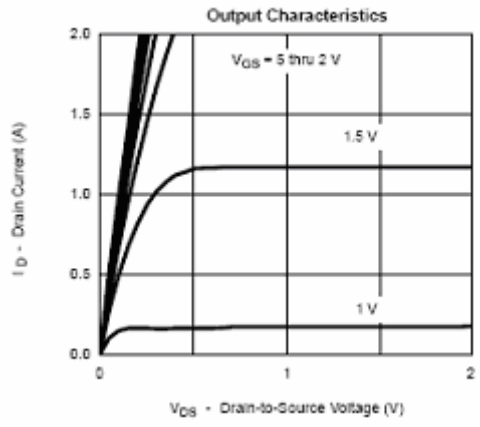
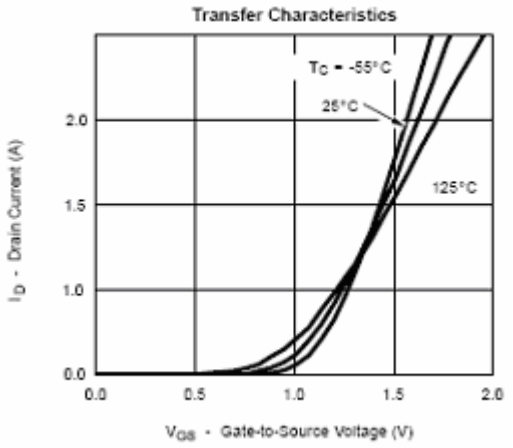
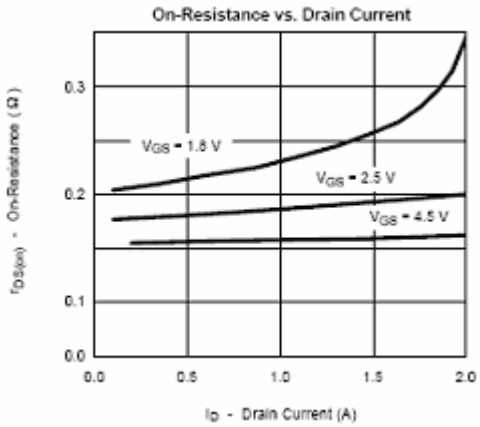
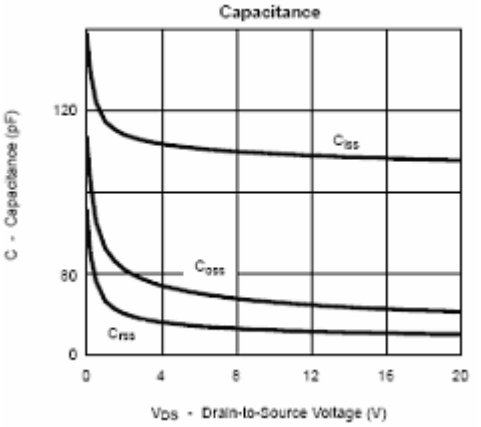
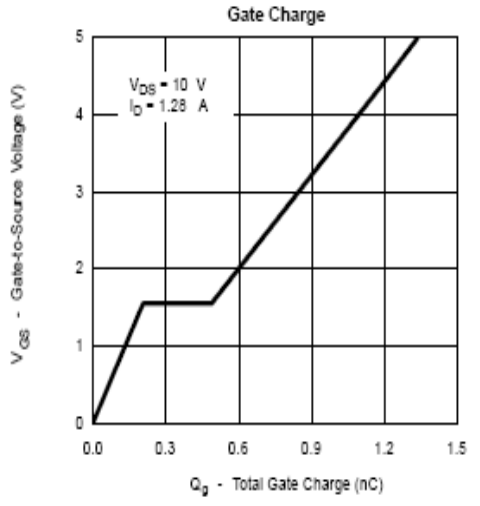
TYPICAL CHARACTERICTICS

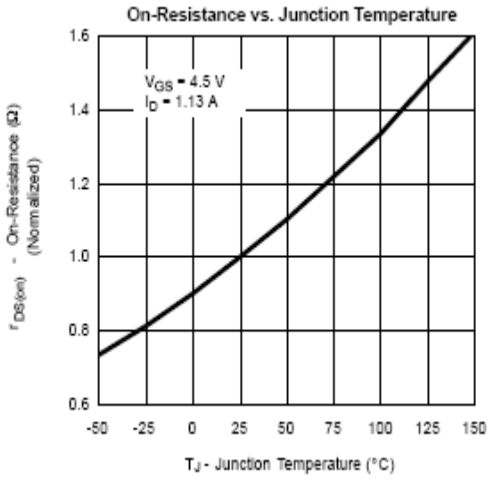












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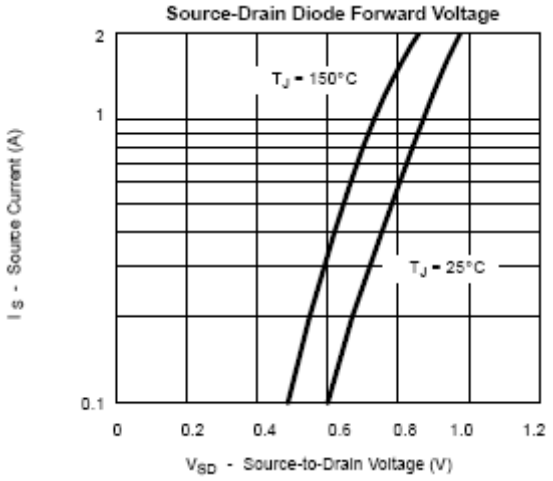

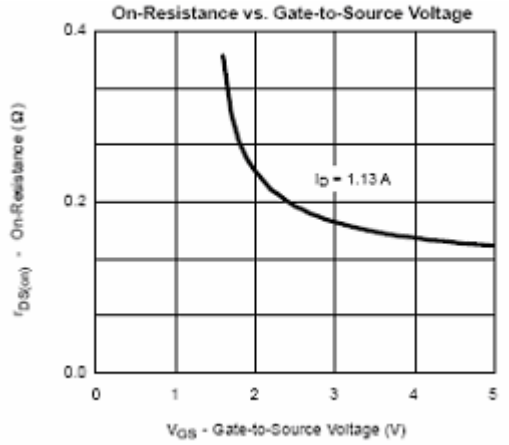

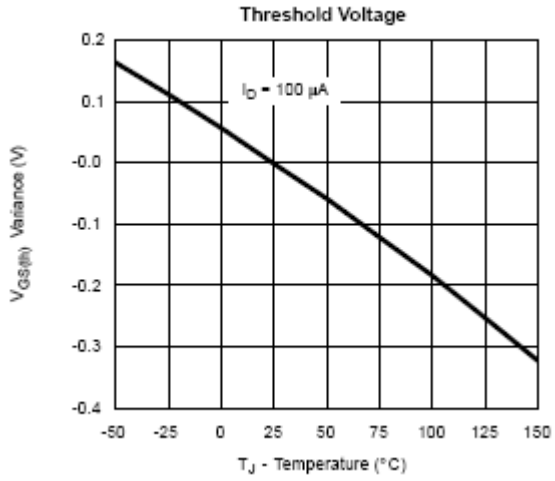

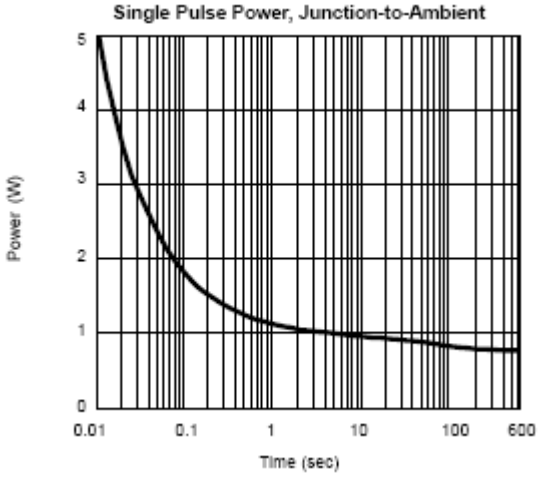

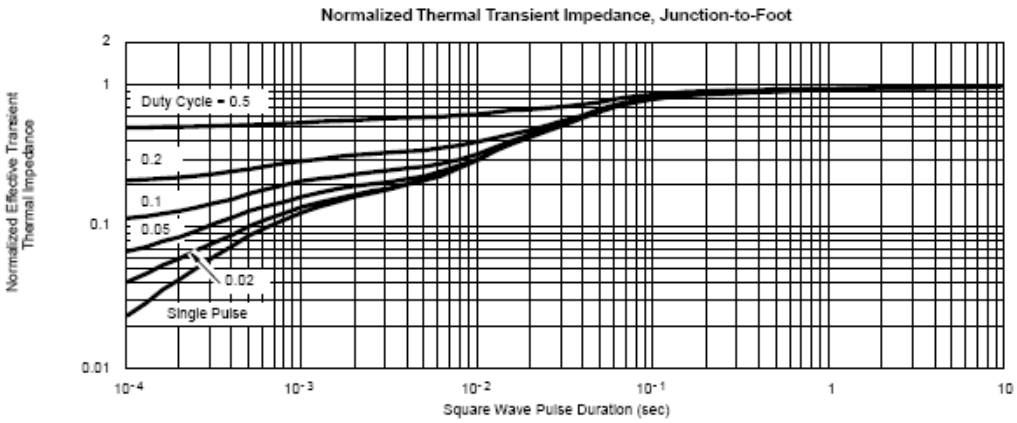

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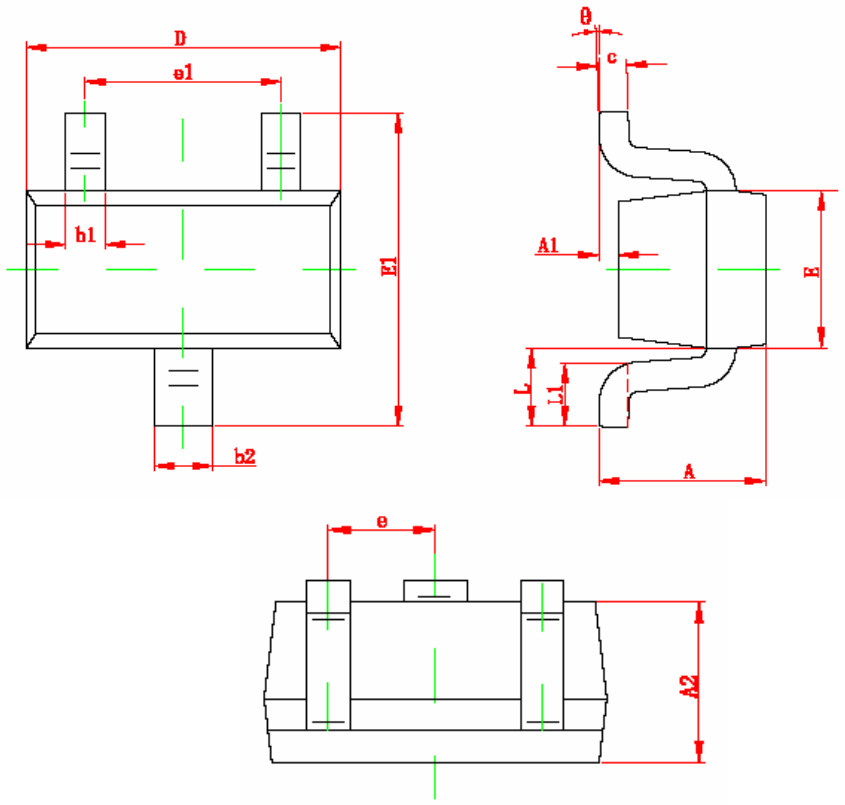
SOT523 (SC-89) PACKAGE OUTLINE



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.325	0.010	0.013
c	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	0.750	0.850	0.030	0.033
E1	1.450	1.750	0.057	0.069
e	0.500 TYP		0.020 TYP	
e1	0.900	1.100	0.035	0.043
L	0.550 REF		0.022 REF	
L1	0.280	0.440	0.011	0.017
θ	0°	4°	0°	4°

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