STN6303

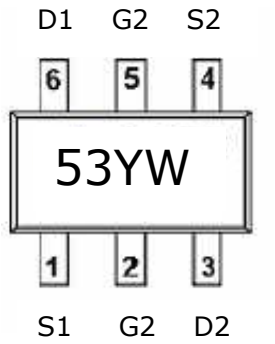
Dual N Channel Enhancement Mode MOSFET

1.0A

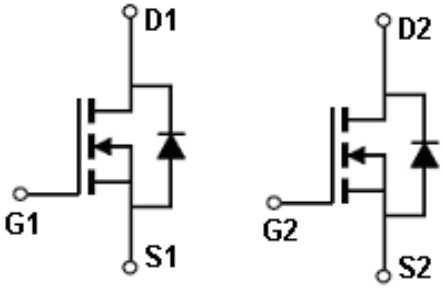
DESCRIPTION

STN6303 is the dual N-Channel enhancement mode power field effect transistor which is 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 circuits where high-side switching, low in-line power loss and resistance to transients are needed.

PIN CONFIGURATION
SOT-363 / SC70-6L



Y: Year
W: Process Code



FEATURE

- 23V/0.5A, $R_{DS(ON)}$ = 400m-ohm@V_{GS} =4.5V
- 23V/0.75A, $R_{DS(ON)}$ =550m-ohm@V_{GS} =2.5V
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional low on-resistance and maximum DC current capability
- SOT-363 / SC70-6L package design

ORDERING INFORMATION

Part Number	Package	Part Marking
STN6303	SOT-363 / SC70-6L	53

※ Process Code : A ~ Z(1~26) ; a ~ z(27~52)

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

Parameter		Symbol	Typical	Unit
Drain-Source Voltage		V_{DSS}	23	V
Gate-Source Voltage		V_{GSS}	+/-20	V
Continuous Drain Current (T_J=150℃)	T_A=25℃	I_D	1.0	A
	T_A=70℃		0.6	
Pulsed Drain Current		I_{DM}	2.5	A
Continuous Source Current (Diode Conduction)		I_S	0.6	A
Power Dissipation	T_A=25℃	P_D	0.35	W
	T_A=70℃		0.19	
Operation Junction Temperature		T_J	-55/150	℃
Storage Temperature Range		T_{STG}	-55/150	℃
Thermal Resistance-Junction to Ambient	T≦10sec	$R_{\theta JA}$	360	℃/W
	Steady State		400	

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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	23			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=85℃			5	
On-State Drain Current	$I_{D(on)}$	V_{DS}≦5V,V_{GS}=4.5V	2.5			A
Drain-source On-Resistance	$R_{DS(on)}$	V_{GS}=4.5V,I_D=0.5A		385	400	mΩ
		V_{GS}=2.7V,I_D=0.2A		530	550	
Forward Transconductance	g_{fs}	V_{DS}=10V,I_D=1.2A		2.6		S
Diode Forward Voltage	V_{SD}	I_S=0.5A,V_{GS}=0V		0.8	1.2	V
DYNAMIC						
Total Gate Charge	Q_g	V_{DS}=10V,V_{GS}=4.5V,V_{DS}=0.7A		1.2	1.5	nC
Gate-Source Charge	Q_{gs}			0.2		
Gate-Drain Charge	Q_{gd}			0.3		
Input Capacitance	C_{iss}	V_{DS}=10V,V_{GS}=0V f=1MHz		110		pF
Output Capacitance	C_{oss}			34		
Reverse Transfer Capacitance	C_{rss}			16		
Turn-On Time	$T_{d(on)}$	V_{DD}=10V, RL=10Ω, I_D=1.0A, 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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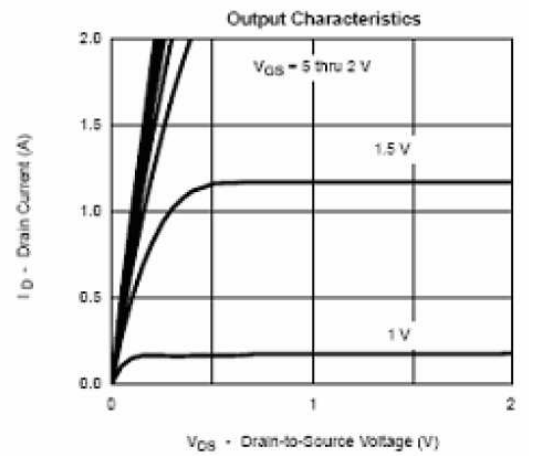
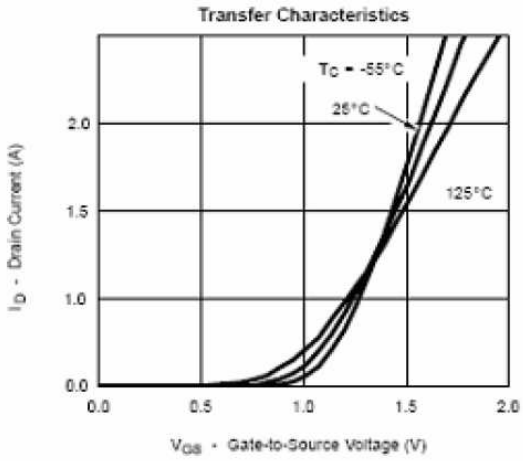
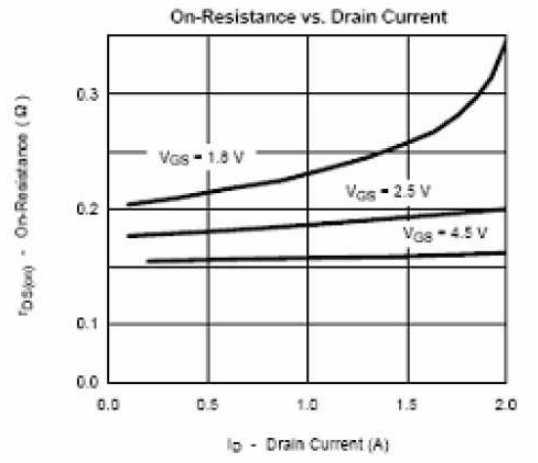
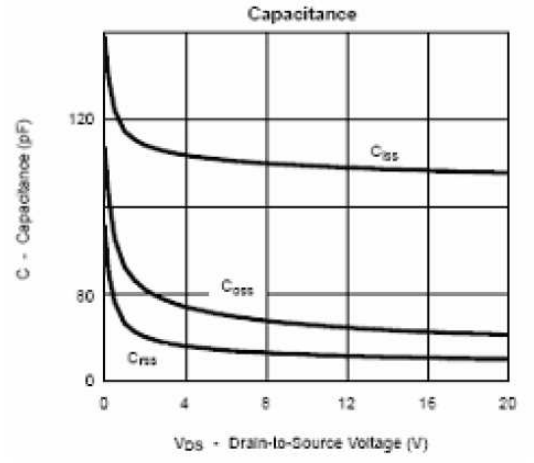
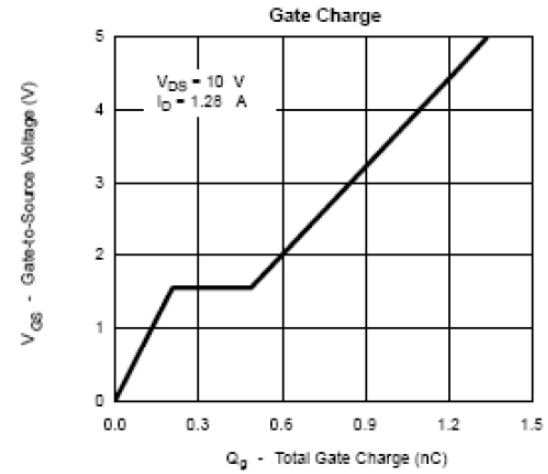
TYPICAL CHARACTERICTICS

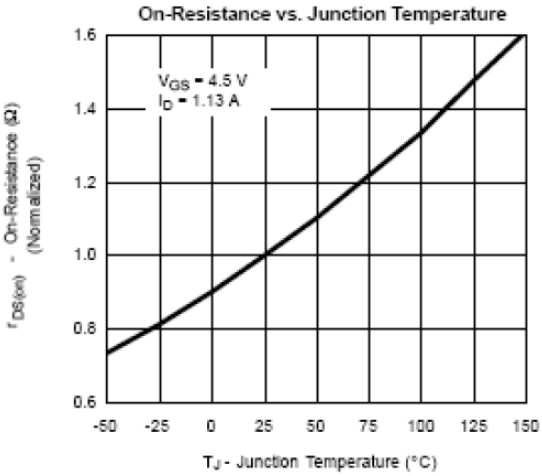












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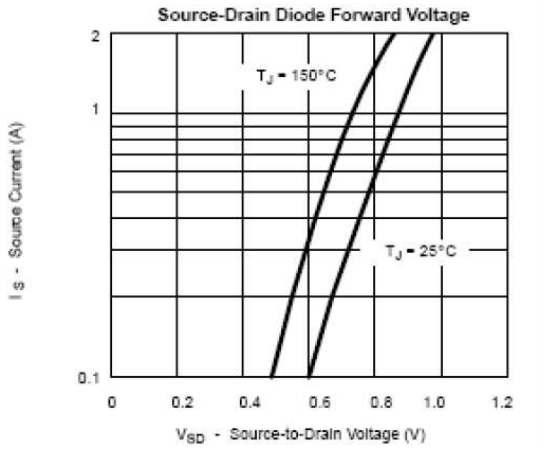

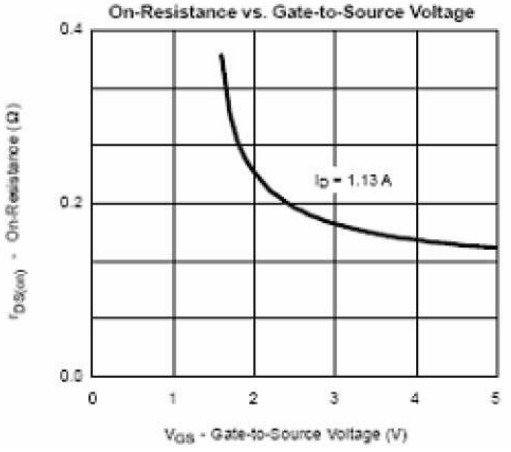

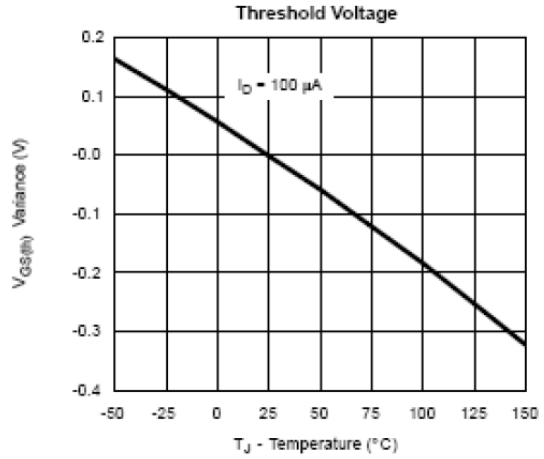

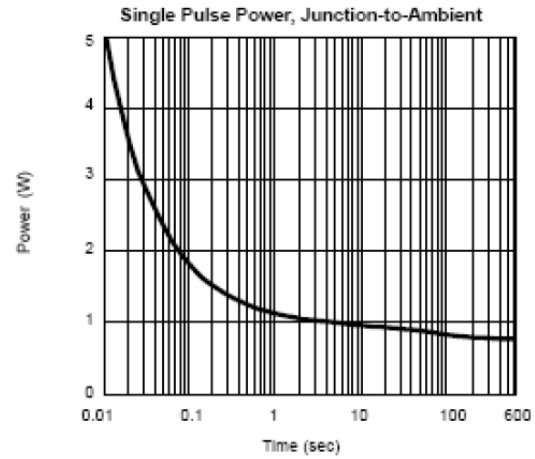

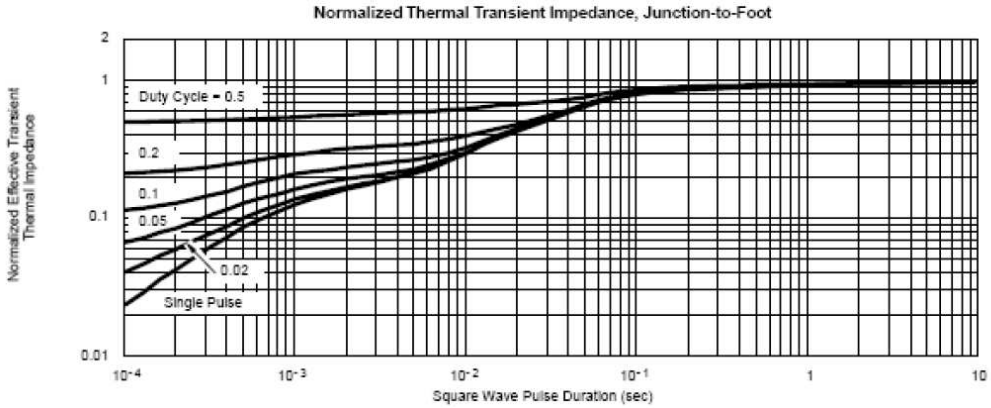

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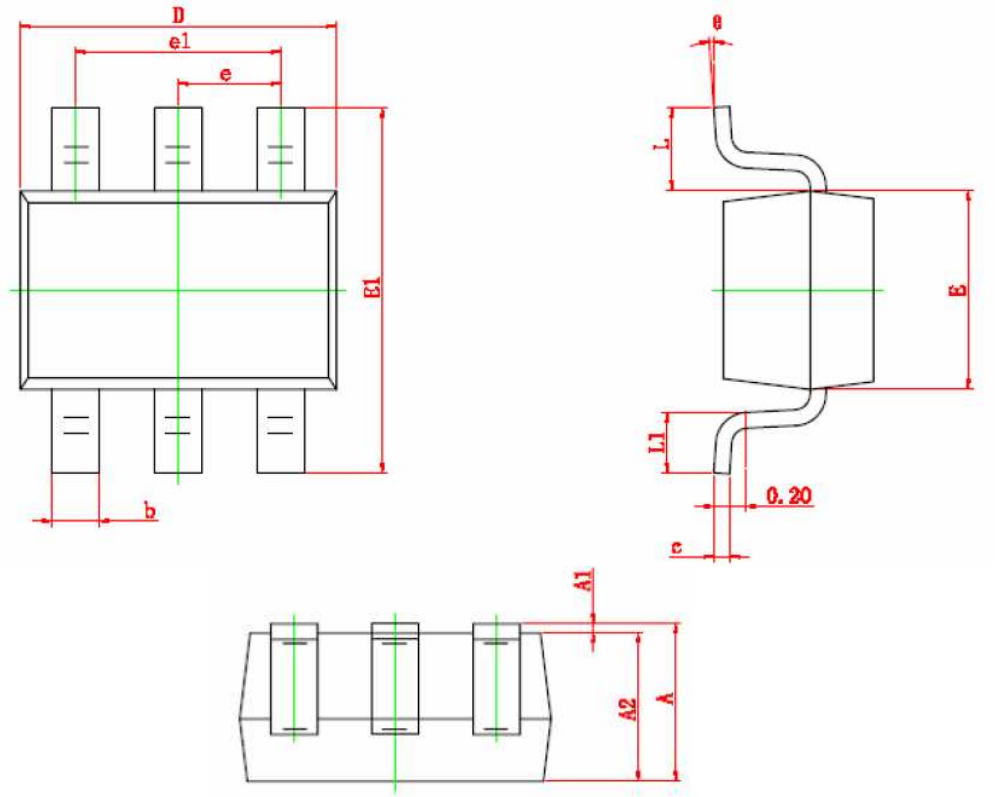
SOT363 (sc70-6L) PACKAGE OUTLINE



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.150	0.350	0.006	0.014
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

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