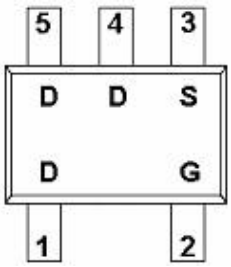
STP1413A

P_ Channel Enhancement Mode MOSFET
-3.4A

DESCRIPTION

The STP1413A is the P-Channel logic 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 circuits where high-side switching, low in-line power loss are needed in a very small outline surface mount package

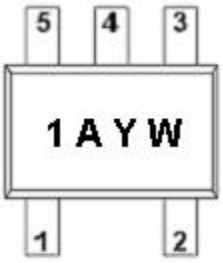
PIN CONFIGURATION SOT-353/SC70



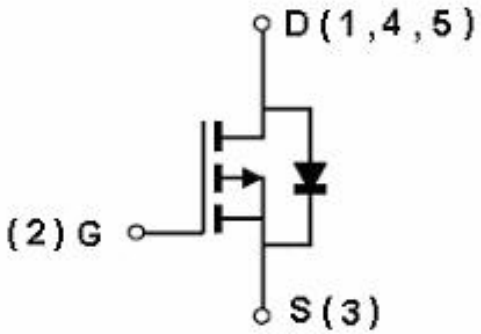
FEATURE

- -20V/-3.4A, $R_{DS(ON)}$ = 130m-ohm@V_{GS} =-4.5V
- -20V/-2.4A, $R_{DS(ON)}$ =150m-ohm@V_{GS} =-2.5V
- -20V/-1.7A, $R_{DS(ON)}$ =190m-ohm@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-353 / SC70 package design

PART MARKING



Y : Year Code
W : Week Code



STANSON TECHNOLOGY
120 Bentley Square, Mountain View, Ca 94040 USA
http://www.stansontech.com

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	-2.3	A
	T_A=70℃		-1.7	
Pulsed Drain Current		I_{DM}	-6	A
Continuous Source Current (Diode Conduction)		I_S	-1.4	A
Power Dissipation	T_A=25℃	P_D	0.95	W
	T_A=70℃		0.51	
Operation Junction Temperature		T_J	-55/150	℃
Storage Temperature Range		T_{STG}	-55/150	℃
Thermal Resistance-Junction to Ambient		$R_{\theta JA}$	105	℃/W

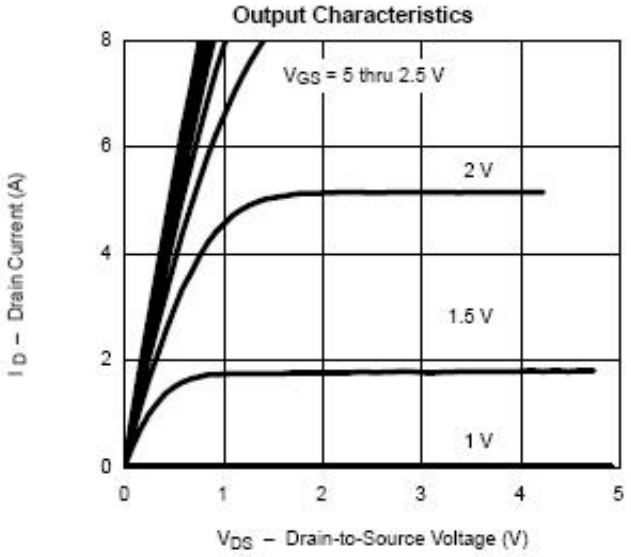
STANSON TECHNOLOGY
120 Bentley Square, Mountain View, Ca 94040 USA
http://www.stansontech.com

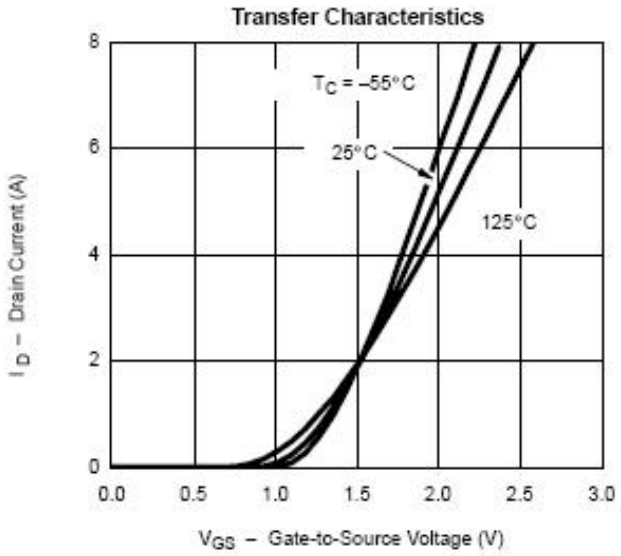
ELECTRICAL CHARACTERISTICS (Ta = 25℃ Unless otherwise noted)

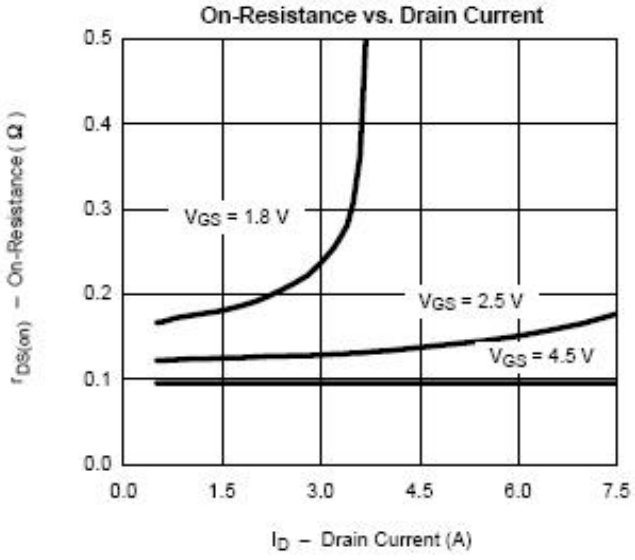
Parameter	Symbol	Condition	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_D=-250uA	-20			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=VGS,I_D=-250uA	-0.35		-0.8	V
Gate Leakage Current	I_{GSS}	V_{DS}=0V,V_{GS}=+/-12V			±100	nA
Zero Gate Voltage Drain 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			A
Drain-source On-Resistance	$R_{DS(on)}$	V_{GS}=-4.5V,I_D=-3.4A		110	130	mΩ
		V_{GS}=-2.5V,I_D=-2.4A V_{GS}=-1.8V,I_D=-1.7A		130 170	150 190	
Forward Transconductance	g_{fs}	V_{DS}=-5V,I_D=-2.8A		6		S
Diode Forward Voltage	V_{SD}	I_S=-1.5A,V_{GS}=0V		-0.8	-1.2	V
Dynamic						
Total Gate Charge	Q_g	V_{DS}=-6V,V_{GS}=-4.5V, V_{DS}=-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, RL=6Ω, I_D=-1.0A, V_{GEN}=-4.5V, RG=6Ω		10	16	nS
	t_r			13	23	
Turn-Off Time	$T_{d(off)}$			18	25	
	t_f			15	20	

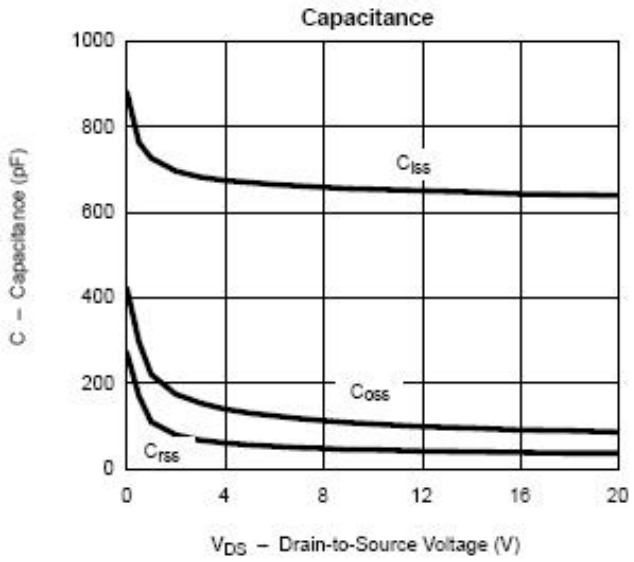
STANSON TECHNOLOGY
120 Bentley Square, Mountain View, Ca 94040 USA
http://www.stansontech.com

TYPICAL CHARACTERICTICS



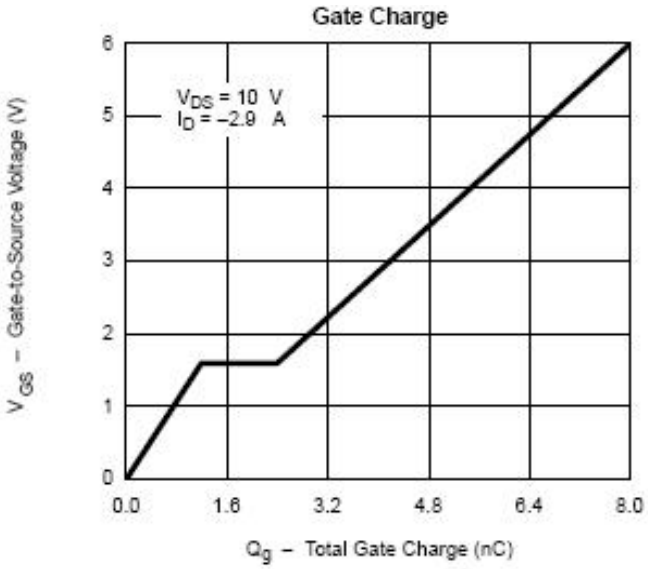


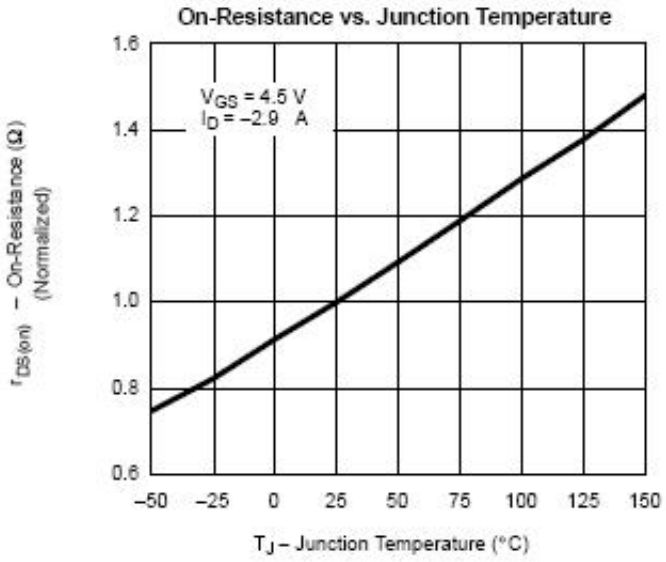


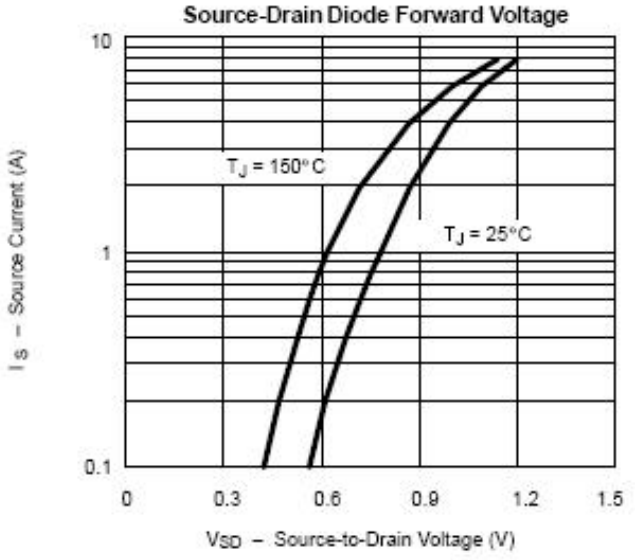


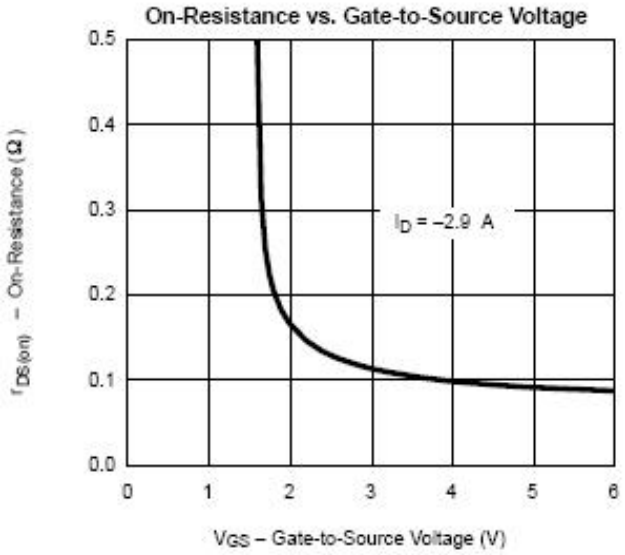
STANSON TECHNOLOGY
120 Bentley Square, Mountain View, Ca 94040 USA
http://www.stansontech.com

TYPICAL CHARACTERICTICS



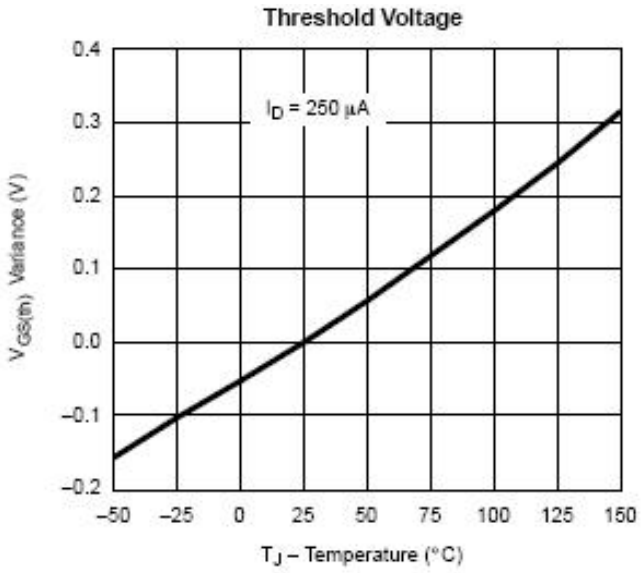


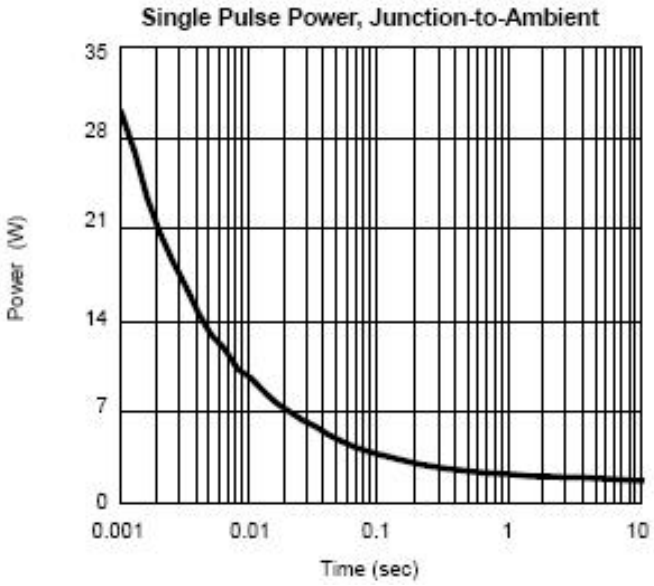


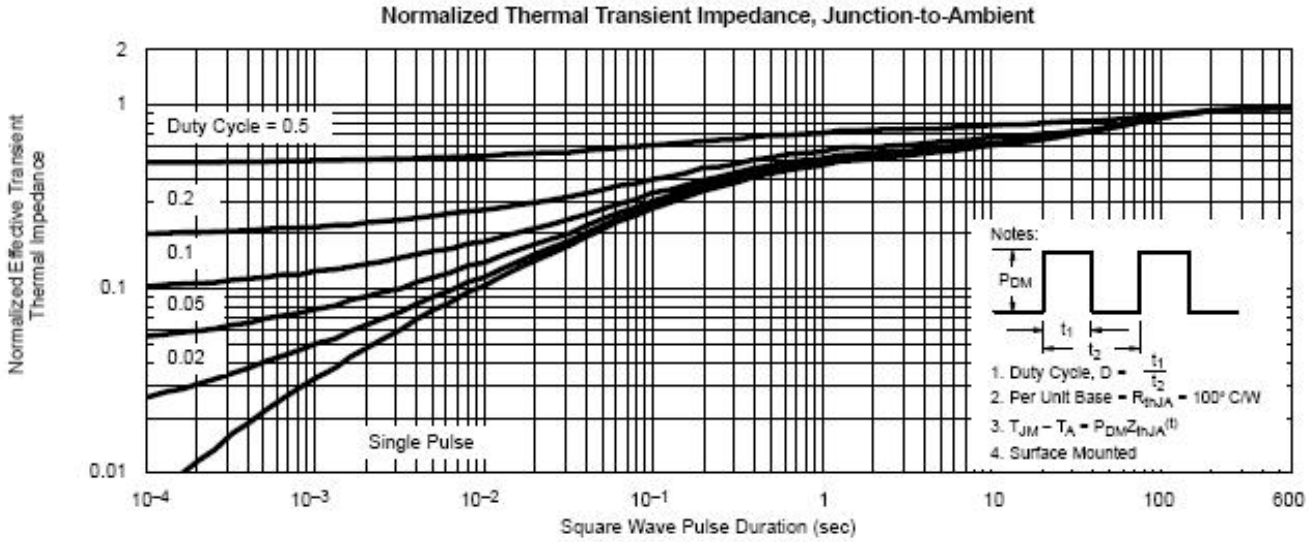


STANSON TECHNOLOGY
120 Bentley Square, Mountain View, Ca 94040 USA
http://www.stansontech.com

TYPICAL CHARACTERICTICS

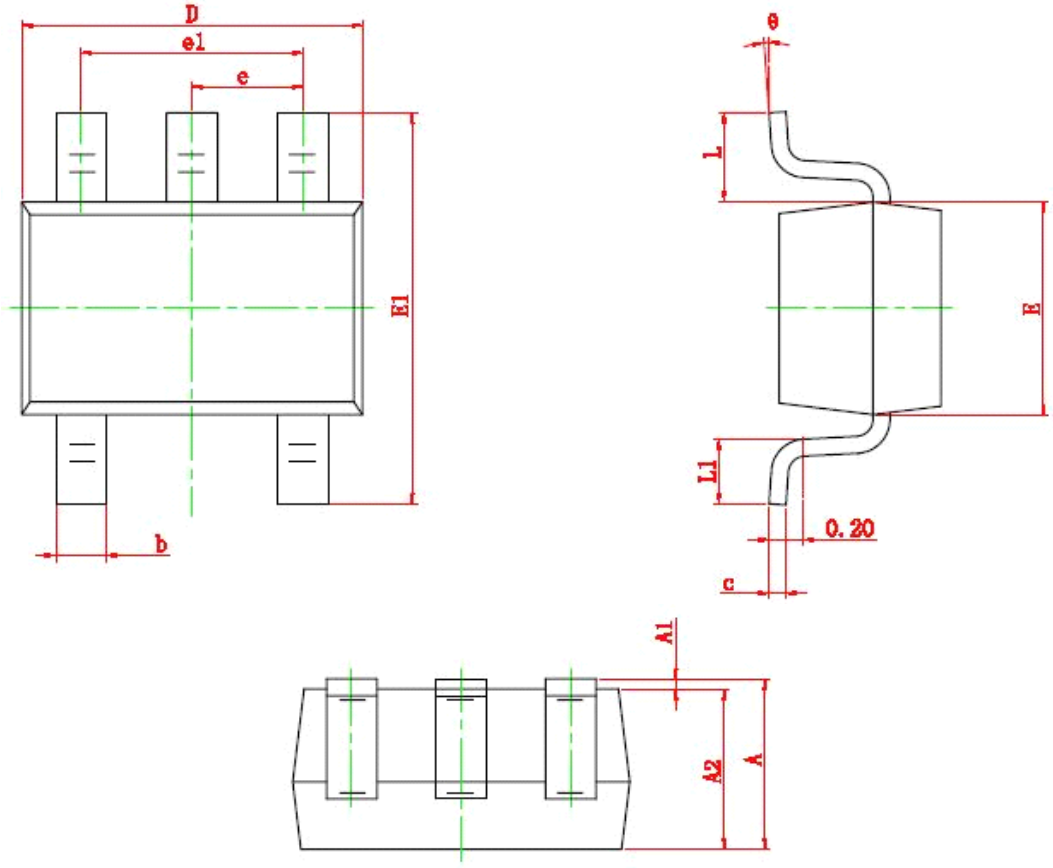






STANSON TECHNOLOGY
120 Bentley Square, Mountain View, Ca 94040 USA
http://www.stansontech.com

SOT353 (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°

STANSON TECHNOLOGY
120 Bentley Square, Mountain View, Ca 94040 USA
http://www.stansontech.com