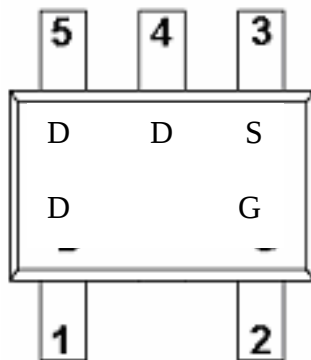


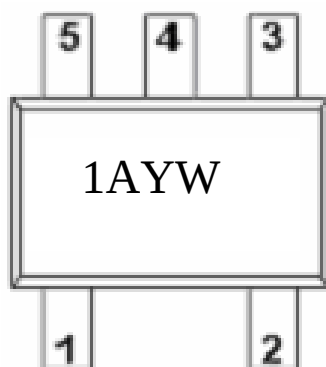
-3.4A**DESCRIPTION**

The ST1413AC is the P-Channel logic enhancement mode power field effect transistors. It is produced using high cell density, DMOS trench technology. This high density process is especially tailored to minimize on-state resistance.

These devices are particularly suited for low voltage application such as cellular phone, notebook computer power management and other battery powered circuits where high-side switching, and low in-line power loss are needed in a very small outline surface mount package.

PIN CONFIGURATION**SOD-353 (SC-70)**

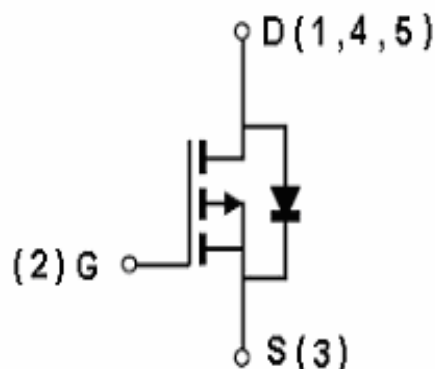
1,4,5.Drain 2.Gate 3.Source



1A : Part Marking
Y : Year Code
W : Week Code

FEATURE

- -20V/-3.4A, $R_{DS(ON)} = 130\text{m-ohm}$ @ $V_{GS} = -4.5\text{V}$
- -20V/-2.4A, $R_{DS(ON)} = 150\text{m-ohm}$ @ $V_{GS} = -2.5\text{V}$
- -20V/-1.7A, $R_{DS(ON)} = 190\text{m-ohm}$ @ $V_{GS} = -1.8\text{V}$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- SOT-353 (SC-70) package design

**STANSON TECHNOLOGY**

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P Channel Enhancement Mode MOSFET ST1413AC

-3.4A

ABSOLUTE MAXIMUM RATINGS (Ta = 25 Unless otherwise noted)

Parameter		Symbol	Typical	Unit
Drain-Source Voltage		VDSS	-20	V
Gate-Source Voltage		VGSS	+/-12	V
Continuous Drain Current (TJ=150)	TA=25	ID	-2.8	A
	TA=70		-2.0	
Pulsed Drain Current		IDM	-8	A
Continuous Source Current (Diode Conduction)		IS	-1.4	A
Power Dissipation	TA=25	PD	0.33	W
	TA=70		0.21	
Operation Junction Temperature		TJ	150	
Storage Temperature Range		TSTG	-55/150	
Thermal Resistance-Junction to Ambient		R θ JA	105	/W

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ELECTRICAL CHARACTERISTICS (Ta = 25 Unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-20			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.4		-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	$I_{D(on)}$	$V_{DS} = -5V, V_{GS}=-4.5V$	-6.0			A
Drain-source On-Resistance	$R_{DS(on)}$	$V_{GS}=-4.5V, I_D=-2.8A$		0.110	0.130	Ω
		$V_{GS}=-2.5V, I_D=-2.0A$		0.130	0.150	
		$V_{GS}=-1.8V, I_D=-1.5A$		0.170	0.190	
Forward Transconductance	g_{fs}	$V_{DS}=-5V, I_D=-2.8V$		6		S
Diode Forward Voltage	V_{SD}	$I_S=-1.6A, V_{GS}=0V$		-0.8	-1.2	V
Dynamic						
Total Gate Charge	Q_g	$V_{DS}=-6V, V_{GS}=-4.5V$ $I_D \equiv -2.8A$		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	$t_{d(on)}$	$V_{DD}=-6V, R_L=6\Omega$ $I_D=-1A, V_{GEN}=-4.5V$ $R_G=6\Omega$		10	25	nS
	t_r			13	60	
Turn-Off Time	$t_{d(off)}$			18	70	
	t_f			15	60	

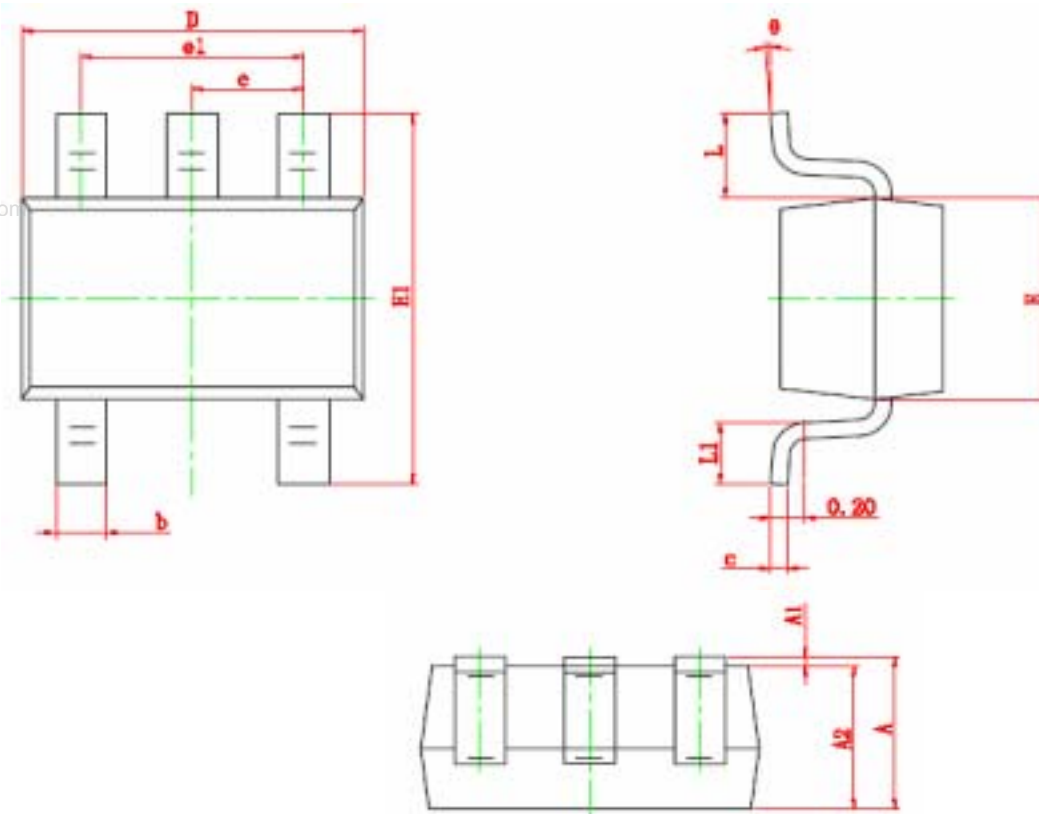


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SOT-353 PACKAGE OUTLINE



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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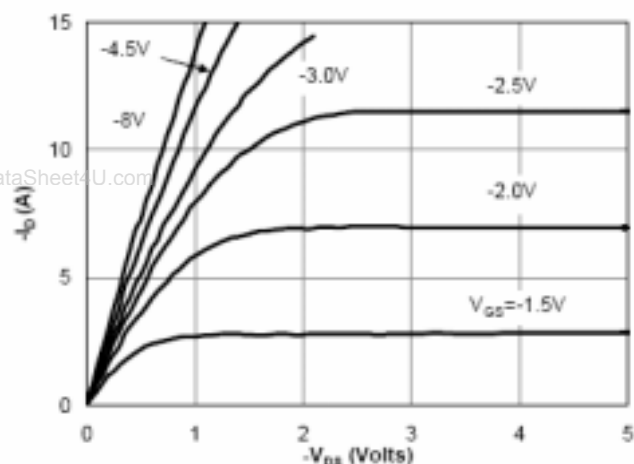


Fig 1: On-Region Characteristics

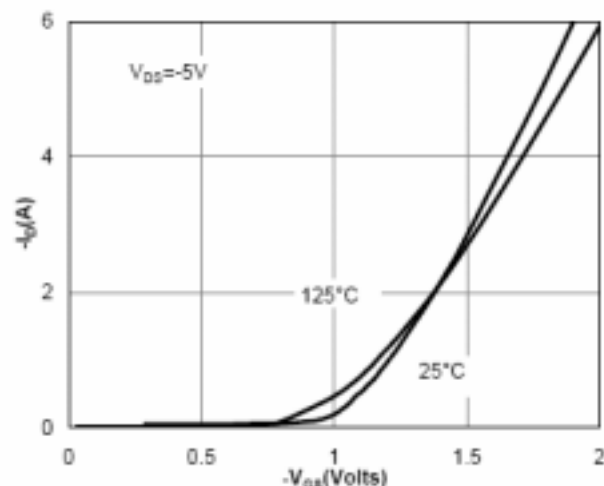


Figure 2: Transfer Characteristics

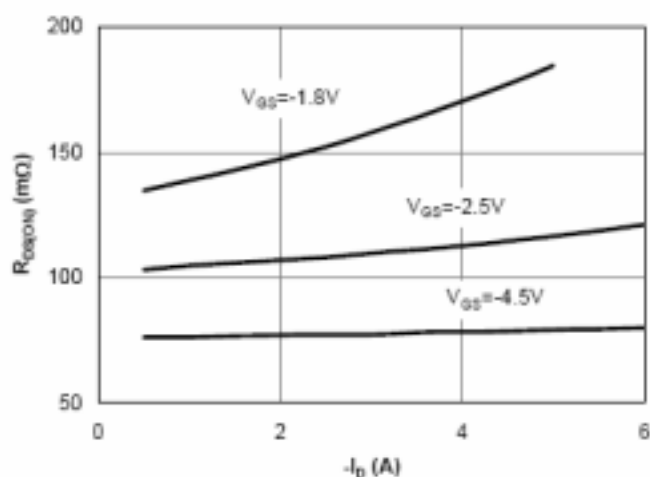


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

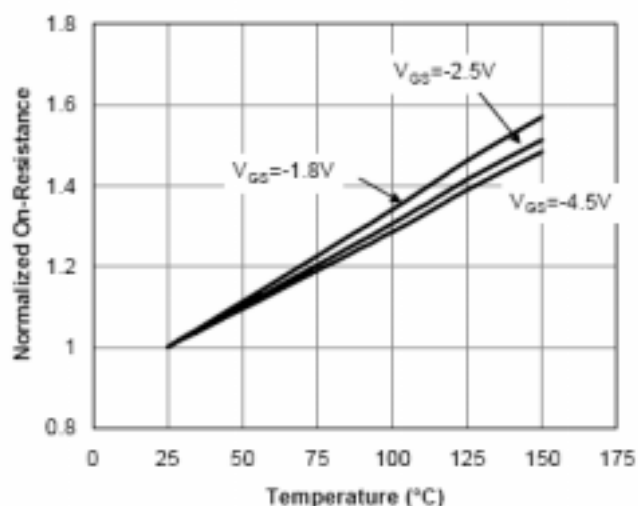


Figure 4: On-Resistance vs. Junction Temperature



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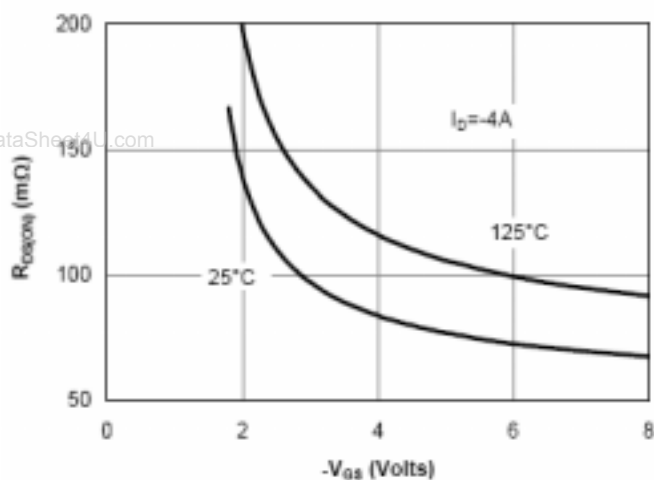


Figure 5: On-Resistance vs. Gate-Source Voltage

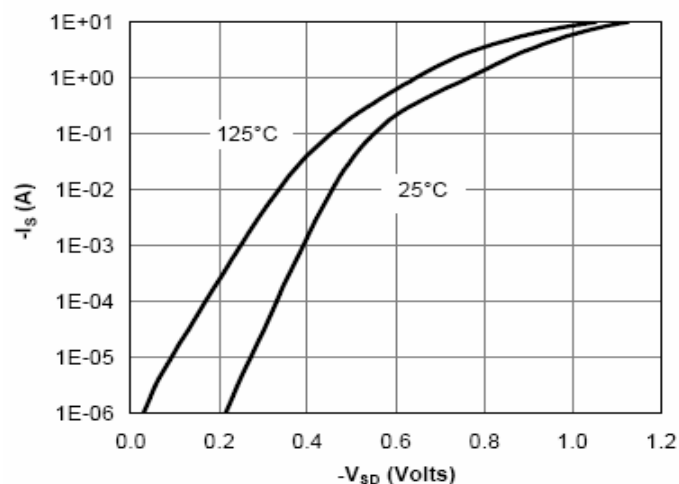


Figure 6: Body-Diode Characteristics

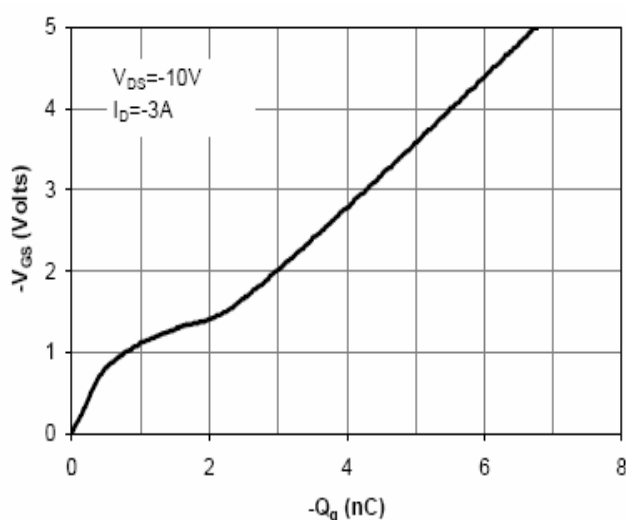


Figure 7: Gate-Charge Characteristics

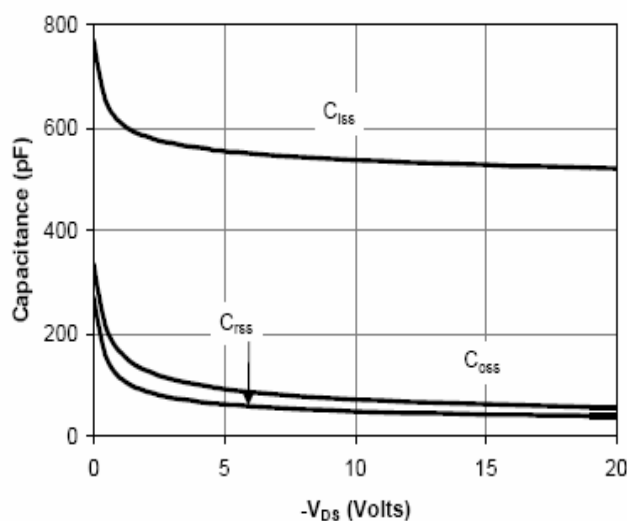


Figure 8: Capacitance Characteristics

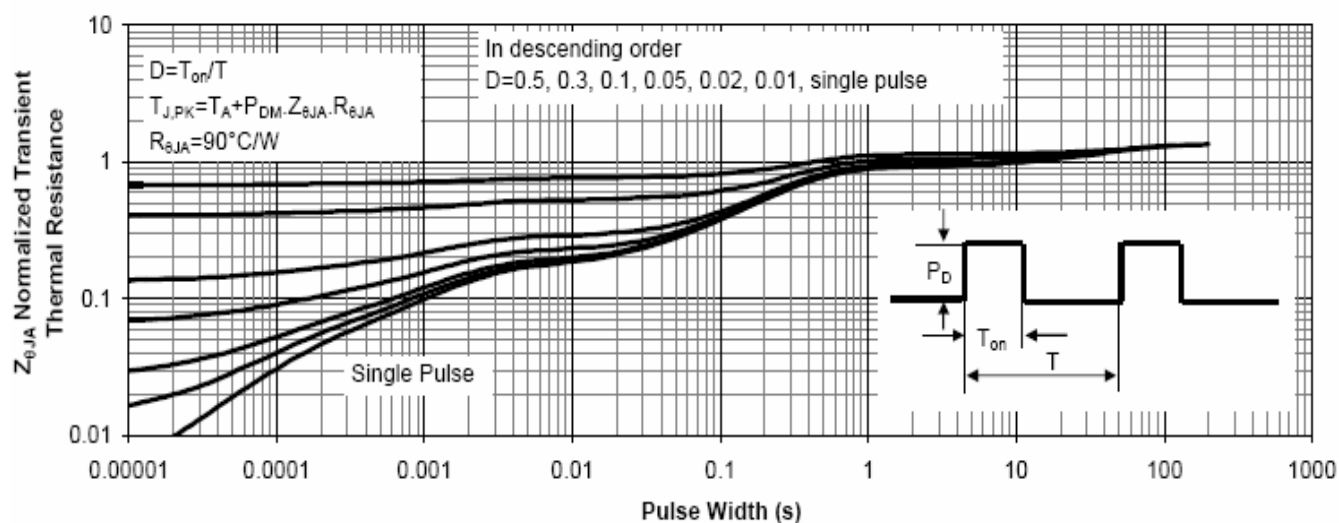
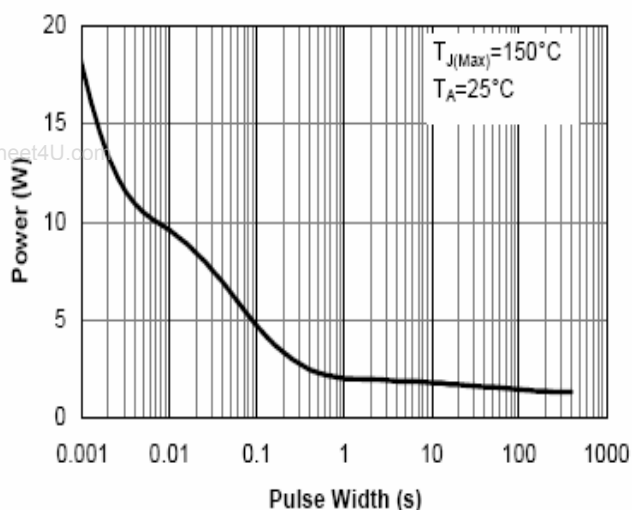


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