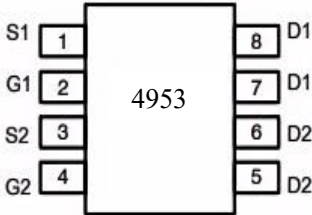


Features ➤ Super Low Gate Charge ➤ Green Device Available ➤ Excellent CdV/dt effect decline ➤ Advanced high cell density Trench technology	Bvdss	Rdson	ID
	-30V	35mΩ	-5.3A
	Application ➤ Battery Switch ➤ Load switch ➤ Power management		



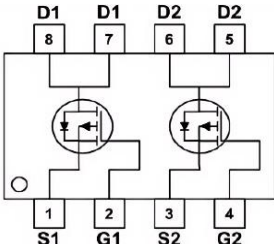
Package



Marking and pin assignment



SOP-8 Top view



Schematic diagram

Package Marking and Ordering Information

Device Marking	Device	Device Package	Quantity
4953	4953A	SOP-8	3000

Absolute Maximum Ratings (T_C=25°C unless otherwise specified)

Parameter		Symbol	Max.	Unit
Drain-Source Voltage		V _{DS}	-30	V
Gate-Source Voltage		V _{GS}	±20	V
Continuous Drain Current, V _{GS} @-10V ¹	T _A = 25°C	I _D	-5.3	A
	T _A = 70°C		-4.3	A
Pulsed Drain Current ²		I _{DM}	-20	A
Single Pulse Avalanche Energy ³		EAS	-	mJ
Total Power Dissipation ³	T _A =25°C	P _D	2	W
Storage Temperature Range		T _{STG}	-55 ~ 150	°C
Operating Junction Temperature Rang		T _J	-55 ~ 150	°C

Thermal Resistance Ratings

Parameter	Symbol	Value	Unit
Thermal Resistance Junction-ambient ¹	R _{θJA}	100	°C/W
Thermal Resistance Junction-Case ¹	R _{θJC}	-	°C/W



Ordering Information

Ordering Number	Package	Pin Assignment						Packing
Halogen Free		G1	G2	D1	D2	S1	S2	
HL4953A	SOP-8	2	4	7,8	5,6	1	3	Tape Reel

Electrical Characteristics ($T_J=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Drain- Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-30	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-30V, V_{GS}=0V$	-	-	-1	μA
Gate to Body Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$	-	-	± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=-250\mu A$	-1	-1.5	-2.1	V
Static Drain-Source On-Resistance ³	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-4.1A$	-	35	60	m Ω
		$V_{GS}=-4.5V, I_D=-3A$	-	52	90	
Input Capacitance	C_{iss}	$V_{DS}=-15V, V_{GS}=0V,$ $f=1\text{MHz}$	-	530	-	pF
Output Capacitance	C_{oss}		-	70	-	
Reverse Transfer Capacitance	C_{rss}		-	56	-	
Total Gate Charge	Q_g	$V_{DS}=-15V, I_D=-4.1A,$ $V_{GS}=-10V$	-	10	-	nC
Gate-Source Charge	Q_{gs}		-	2	-	
Gate-Drain Charge	Q_{gd}		-	2.8	-	
Turn-on Delay Time	$t_{d(on)}$	$V_{GS}=-10V, V_{DD}=-15V,$ $R_G=6\Omega, I_D=-4.1A,$	-	6.9	-	ns
Turn-on Rise Time	t_r		-	12	-	
Turn-off Delay Time	$t_{d(off)}$		-	19	-	
Turn-off Fall Time	t_f		-	7.5	-	
Maximum Continuous Drain to Source Diode Forward Current	I_S	-	-	-	-5.3	A
Maximum Pulsed Drain to Source Diode Forward Current	I_{SM}	-	-	-	-	A
Drain to Source Diode Forward Voltage ³	V_{SD}	$V_{GS}=0V, I_S=-1.7A$	-	-	-1.2	V

Notes:

1. Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}=150^{\circ}\text{C}$.
2. The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper, The value in any given application depends on the user's specific board design.
3. Pulse Test: Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
4. This value is guaranteed by design hence it is not included in the production test.

Typical Performance Characteristics

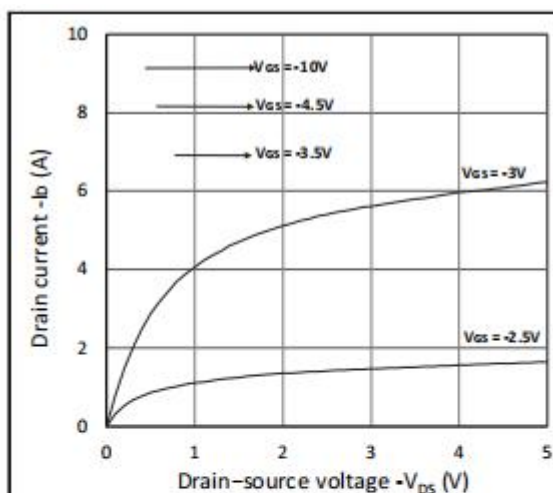


Figure 1. Output Characteristics

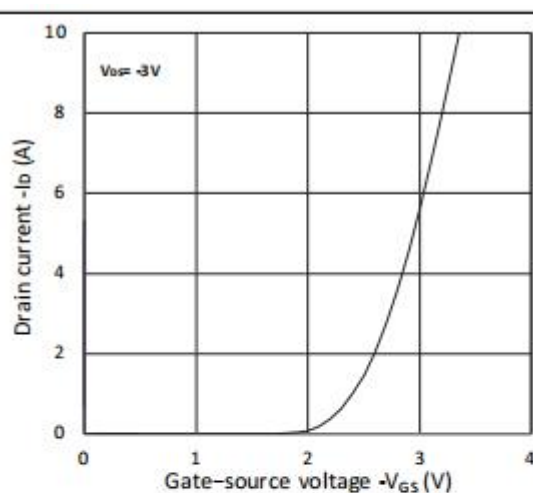


Figure 2. Transfer Characteristics

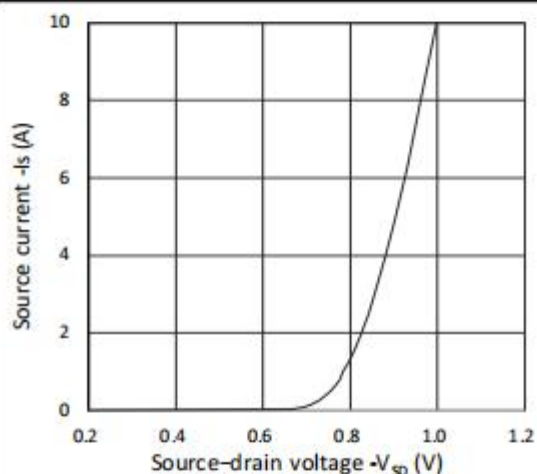
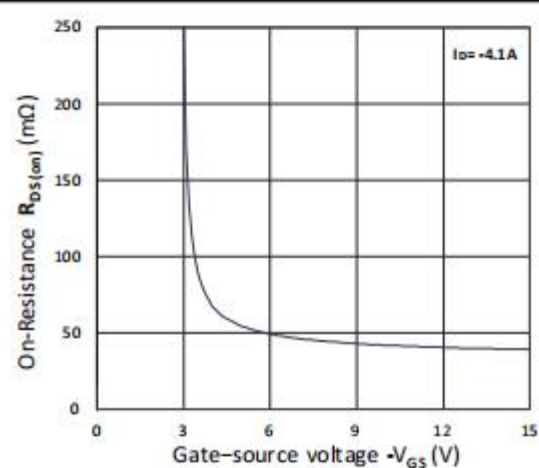
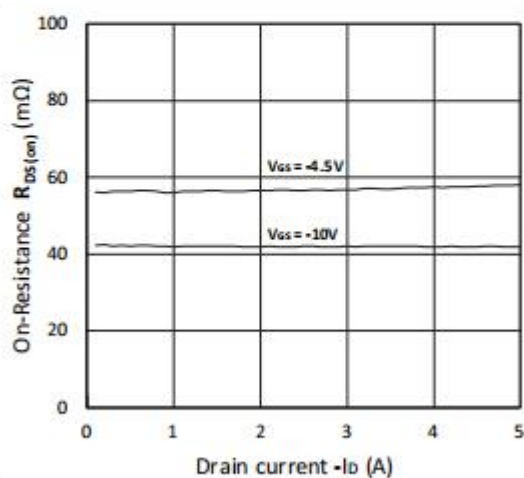
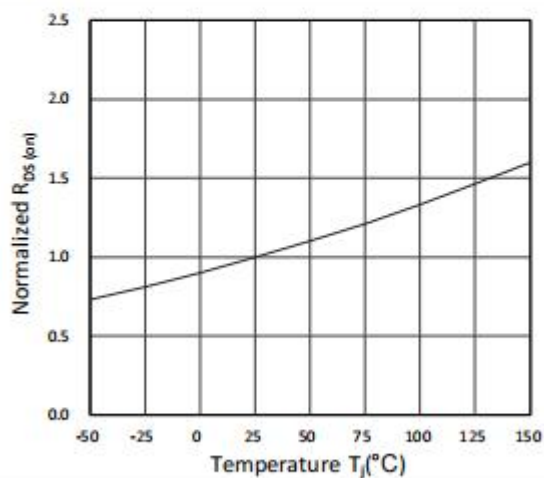


Figure 3. Forward Characteristics of Reverse


Figure 4. $R_{DS(on)}$ vs. V_{GS}

Figure 5. $R_{DS(on)}$ vs. I_D

Figure 6. Normalized $R_{DS(on)}$ vs. Temperature

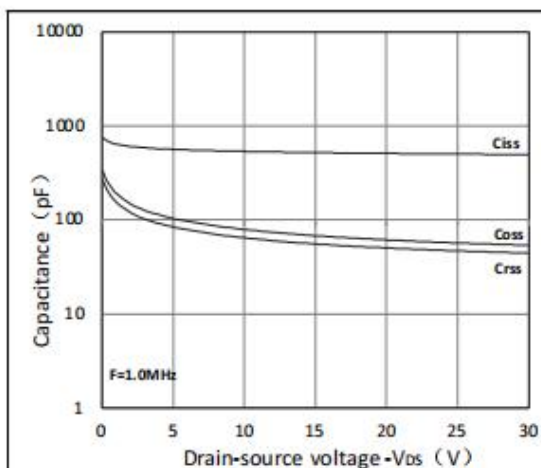


Figure 7. Capacitance Characteristics

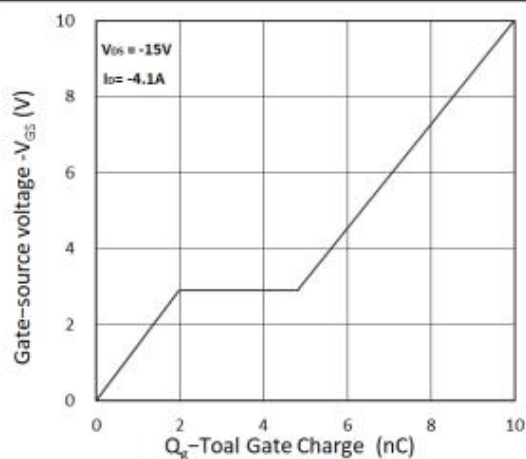
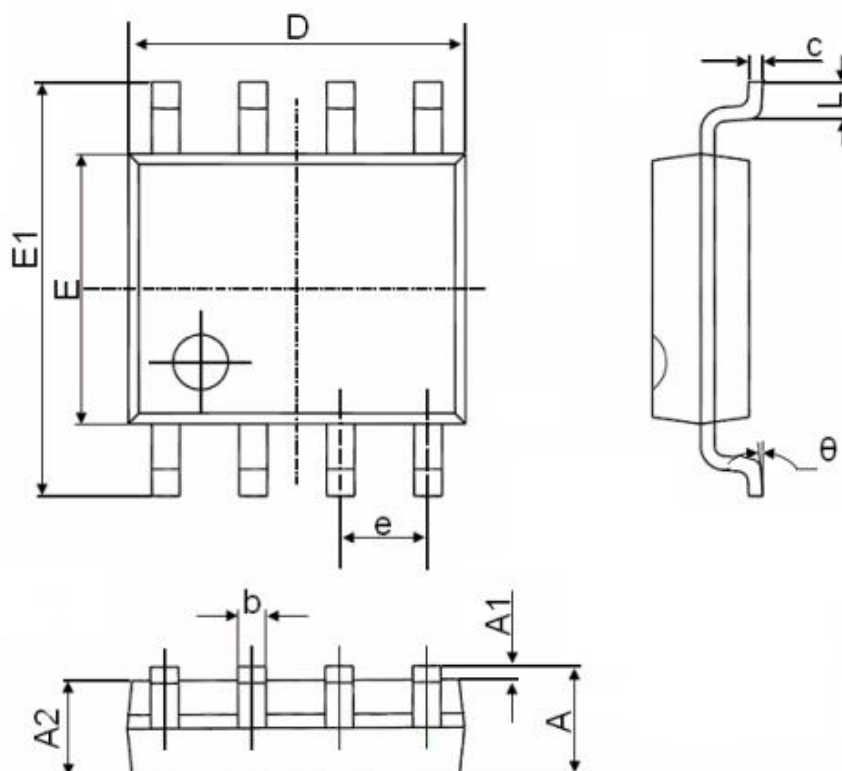


Figure 8. Gate Charge Characteristics

Package Dimensions SOP-8



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°



Important Notice and Disclaimer

HL Microelectronics reserves the right to make changes to this document and its products and specifications at any time without notice.

Customers should obtain and confirm the latest product information and specifications before final design, purchase or use.

HL Microelectronics makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, not does HL Microelectronics assume any liability for application assistance or customer product design.

HL Microelectronics does not warrant or accept any liability with products which are purchased or used for any unintended or unauthorized application.

No license is granted by implication or otherwise under any intellectual property rights of HL Microelectronics.

HL Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of HL Microelectronics.