EVVOSEMI®
THINK CHANGE DO

ESD TVS MOS LDO Diode Sensor DC-DC

Product Specification

Domestic Part Number	APM4953
Overseas Part Number	APM4953
Equivalent Part Number	APM4953

-30V P-Channel MOSFET

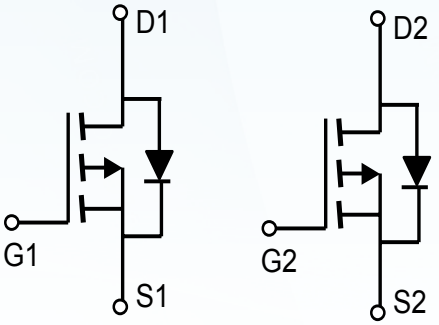
Features

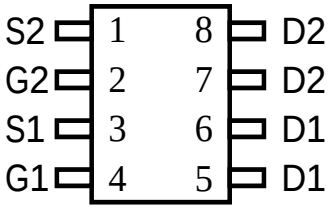
$V_{DS\ (V)}$ = -30V

I_D = -5.3A (V_{GS} = 10V)

$R_{DS(ON)}$ < 41mΩ (V_{GS} = -10V)

$R_{DS(ON)}$ < 75mΩ (V_{GS} = -4.5V)





Absolute Maximum Ratings (T_A=25°C, unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	-30	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Drain Current (Continuous)	-5.3	A
I_{DM}	Drain Current (Pulsed) [a]	-20	A
P_D	Total Power Dissipation @T_A=25°C	2.0	W
I_S	Maximum Diode Forward Current	-1.9	A
T_j, T_{stg}	Operating Junction and Storage Temperature Range	-55 to +150	°C
$R_{\theta JA}$	Thermal Resistance Junction to Ambient (PCB mounted)[b]	50	°C/W

a: Repetitive Rating: Pulse width limited by the maximum junction temperation.
b: 1-in^2 2oz Cu PCB board

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Electrical Characteristics (T_A=25°C, unless otherwise noted)

Symbol	Characteristic	Test Conditions	Min.	Typ.	Max.	Unit
OFF CHARACTERISTICS						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=-250uA	-30	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=-24V, V_{GS}=0V	-	-	-1	uA
I_{GSS}	Gate-Body Leakage Current	V_{GS}=±20V, V_{DS}=0V	-	-	±100	nA
ON CHARACTERISTICS[b]						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=-250uA	-1	-1.5	-2.5	V
$R_{DS(on)}$	Drain-Source On-State Resistance	V_{GS}=-10V, I_D=-5.3A	-	38	41	mΩ
		V_{GS}=-4.5V, I_D=-3.9A	-	59	75	
g_{FS}	Forward Transconductance	V_{DS}=-10V, I_D=-5.3A	-	11	-	S
DYNAMIC CHARACTERISTICS[c]						
C_{iss}	Input Capacitance	V_{DS}=-15V, V_{GS}=0V, f=1MHz	-	504	-	PF
C_{oss}	Output Capacitance		-	68	-	
C_{rss}	Reverse Transfer Capacitance		-	56	-	
SWITCHING CHARACTERISTICS[c]						
Q_g	Total Gate Charge	V_{DS}=-15V, I_D=-3.6A, V_{GS}=-10V	-	12	-	nC
Q_{gs}	Gate-Source Charge		-	2.3	-	
Q_{gd}	Gate-Drain Charge		-	1.4	-	
$t_{d(on)}$	Turn-on Delay Time	V_{DD}=-15V, R_L=5Ω, I_D=-3A, V_{GEN}=-10V, R_G=6Ω	-	8.1	-	nS
t_r	Turn-on Rise Time		-	3.3	-	
$t_{d(off)}$	Turn-off Delay Time		-	29.3	-	
t_f	Turn-off Fall Time		-	5.6	-	
Drain-Source Diode Characteristics						
V_{SD}	Drain-Source Diode Forward Voltage	V_{GS}=0V, I_S=-1.9A	-	-	-1.3	V

Note: Pulse Test: Pulse Width ≤300us, Duty Cycle≤2%

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Characteristics Curve

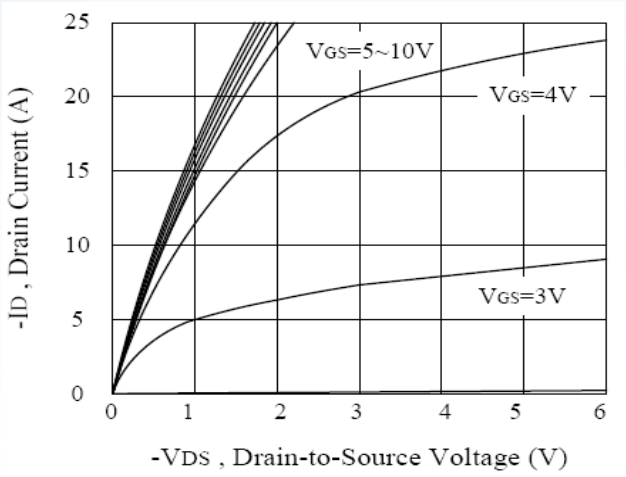

Figure 1. Output Characteristics

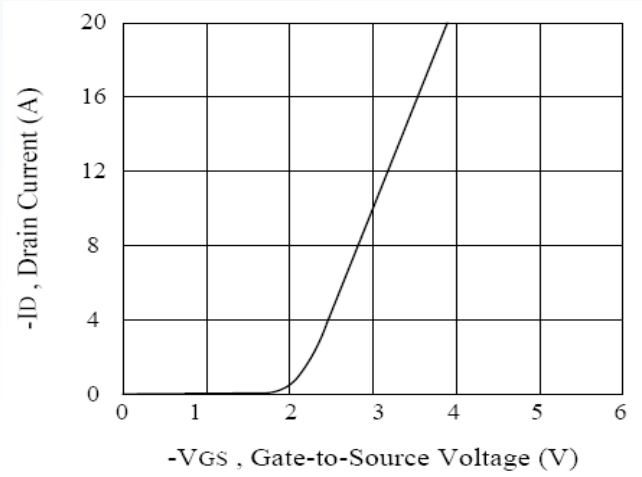

Figure 2. Transfer Characteristics

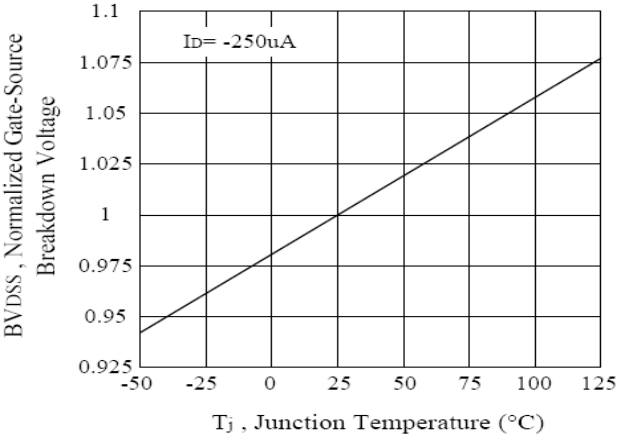

Figure 3. Breakdown Voltage Variation with Temperature

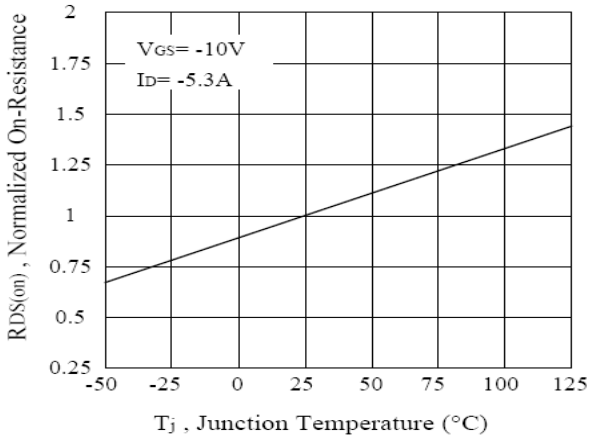

Figure 4. On-Resistance Variation with Temperature

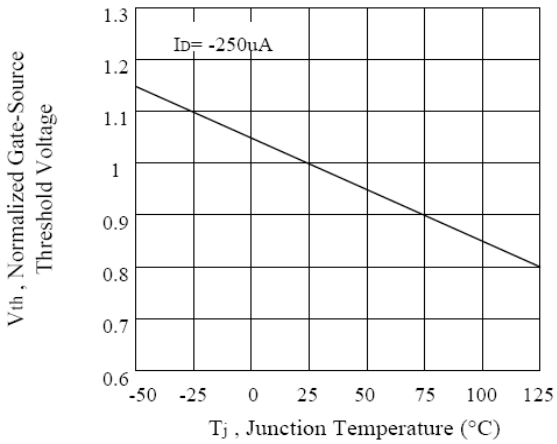

Figure 5. Gate Threshold Variation with Temperature

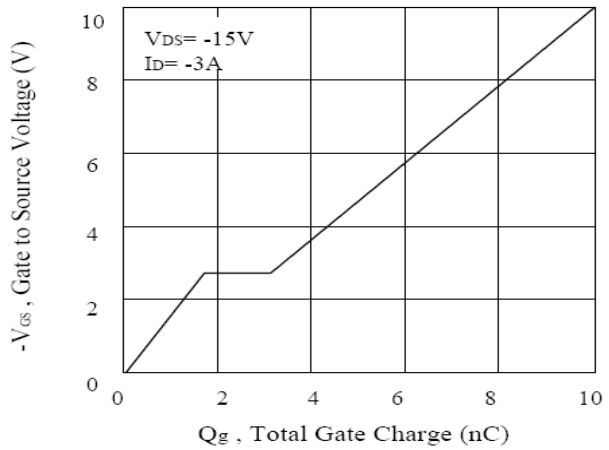

Figure 6. Gate Charge

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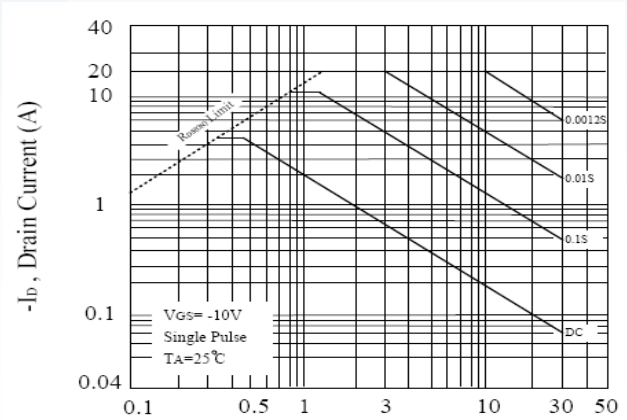
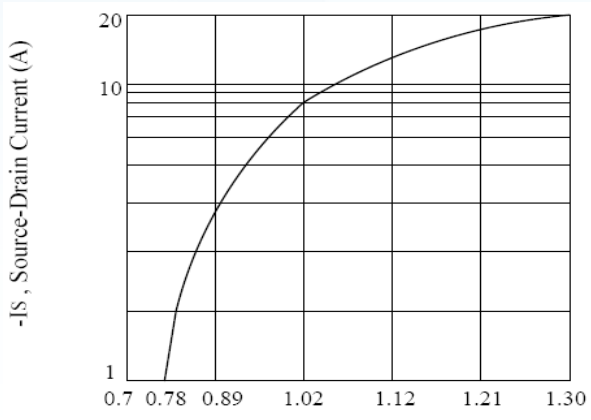
Characteristics Curve



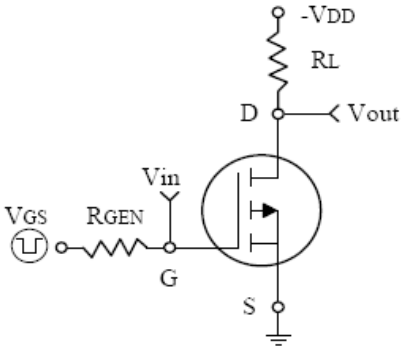
-VDS , Drain-Source Voltage (V)

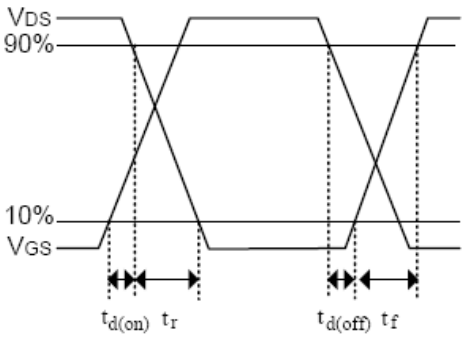
Figure 7. Maximum Safe Operating Area



-VSD , Body Diode Forward Voltage (V)

Figure 8. Body Diode Forward Voltage Variation with Source Current





Switching Test Circuit and Switching Waveforms

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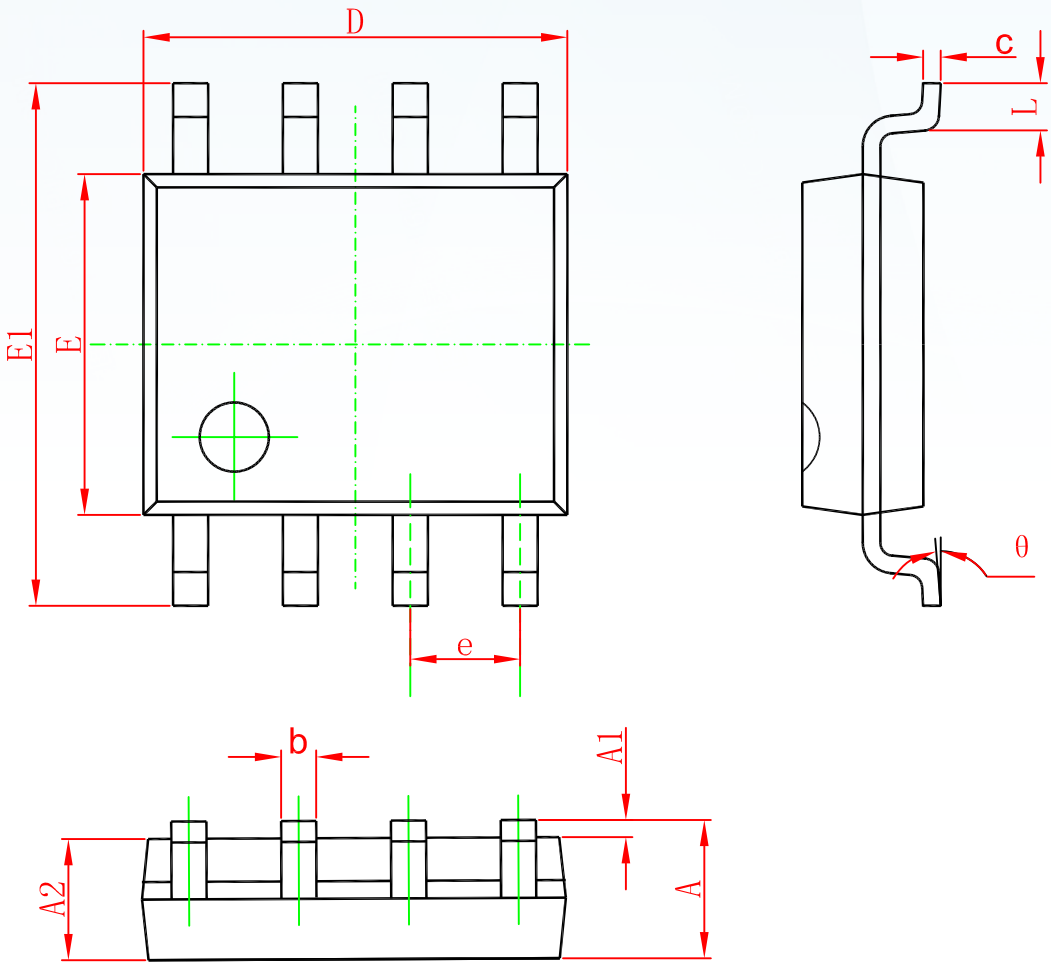
PACKAGE OUTLINE DIMENSIONS

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°

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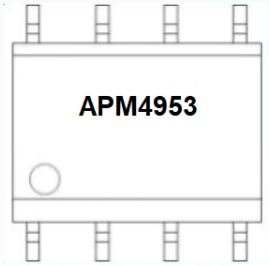
Marking



Ordering information

Order code	Package	Baseqty	Deliverymode
APM4953	SOP-8	3000	Tape and reel

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