

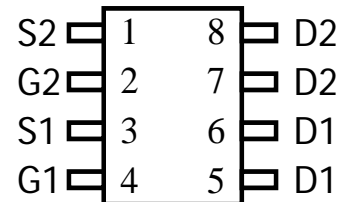
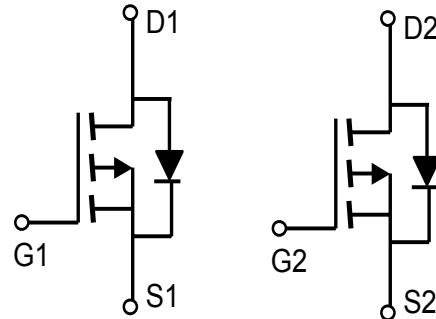
Features

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

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

$R_{DS(ON)} < 41m\Omega (V_{GS} = -10V)$

$R_{DS(ON)} < 75m\Omega (V_{GS} = -4.5V)$



Absolute Maximum Ratings ($T_A=25^\circ C$, 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 @ $T_A=25^\circ C$	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	$^\circ C$
$R_{\theta JA}$	Thermal Resistance Junction to Ambient (PCB mounted) ^b	50	$^\circ C/W$

a: Repetitive Rating: Pulse width limited by the maximum junction temperature.

b: 1-in² 2oz Cu PCB board

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

Symbol	Characteristic	Test Conditions	Min.	Typ.	Max.	Unit
OFF CHARACTERISTICS						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	-30	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=-24V, V_{GS}=0V$	-	-	-1	μA
I_{GSS}	Gate-Body Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
ON CHARACTERISTICS^b						
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1	-1.5	-2.5	V
$R_{DS(on)}$	Drain-Source On-State Resistance	$V_{GS}=-10V, I_D=-5.3A$	-	38	41	$m\Omega$
		$V_{GS}=-4.5V, I_D=-3.9A$	-	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	$V_{DD}=-15V, R_L=5\Omega, I_D=-3A,$ $V_{GEN}=-10V, R_G=6\Omega$	-	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 $\leq 300\mu s$, Duty Cycle $\leq 2\%$

Characteristics Curve

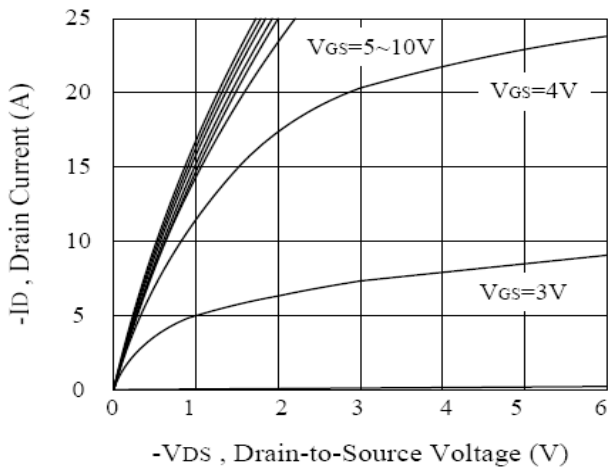


Figure 1. Output Characteristics

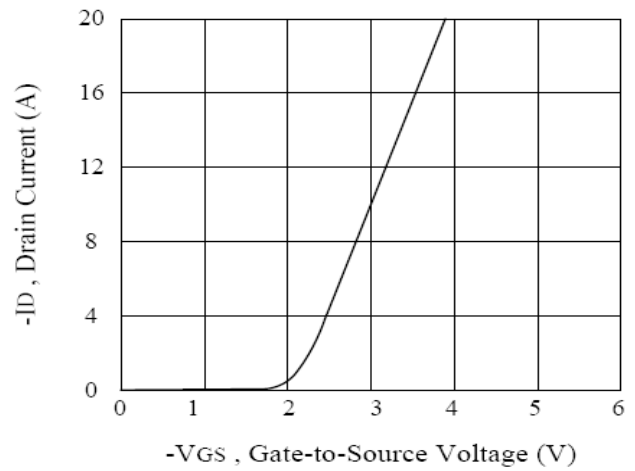


Figure 2. Transfer Characteristics

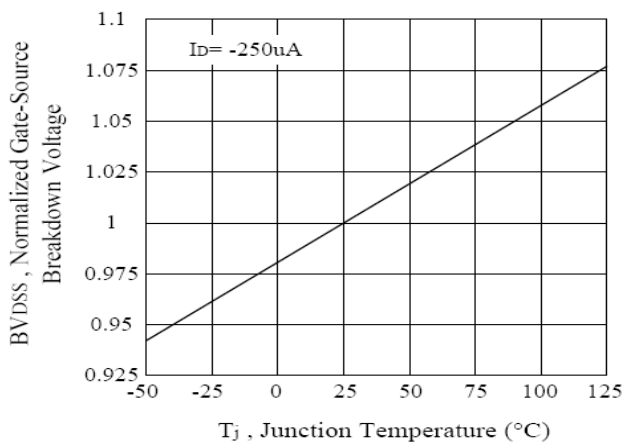


Figure 3. Breakdown Voltage Variation with Temperature

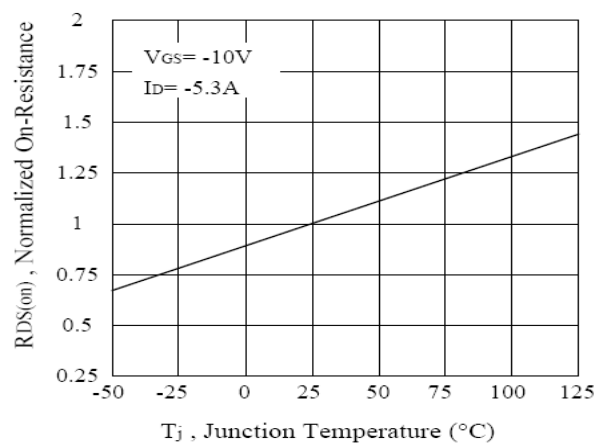


Figure 4. On-Resistance Variation with Temperature

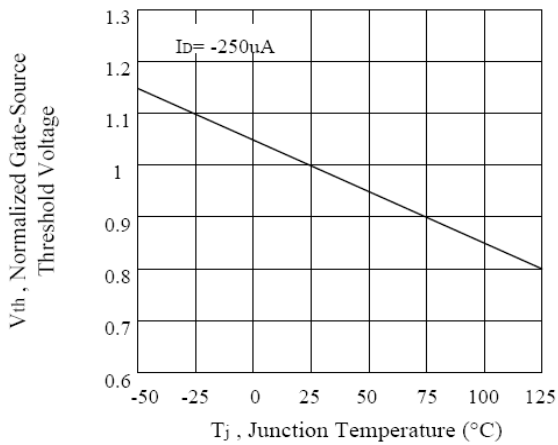


Figure 5. Gate Threshold Variation with Temperature

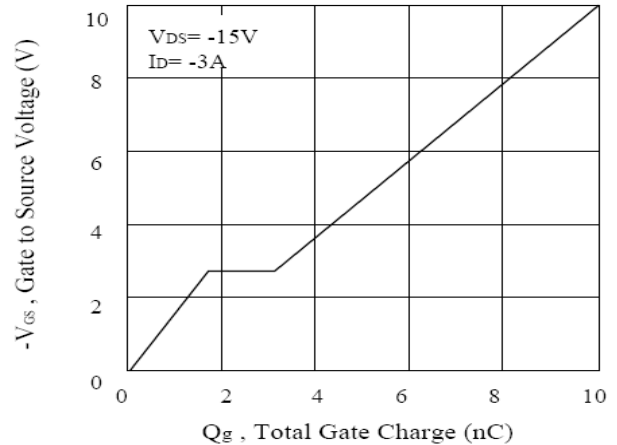


Figure 6. Gate Charge

Characteristics Curve

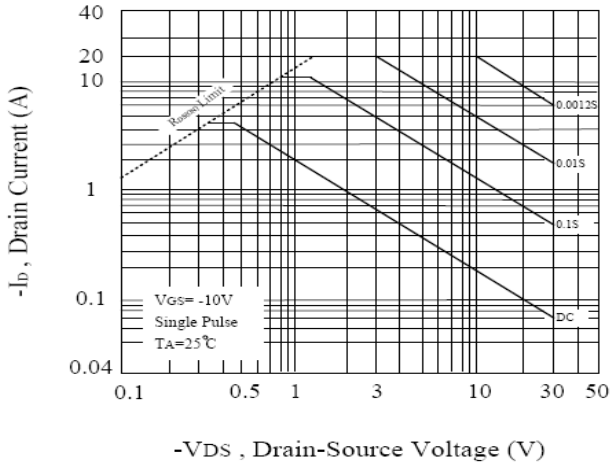


Figure 7. Maximum Safe Operating Area

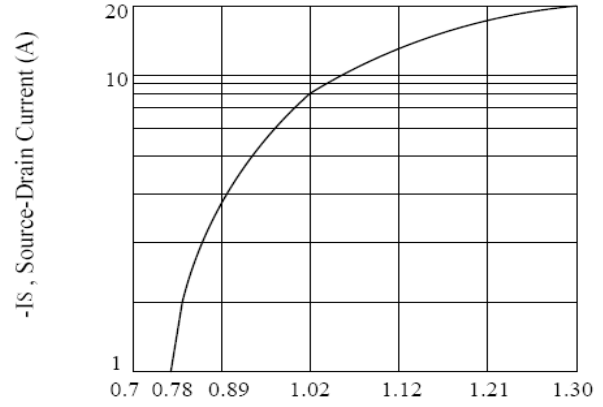
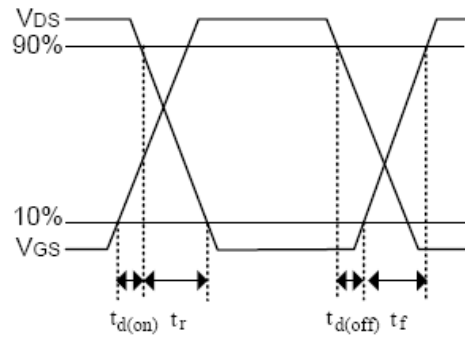
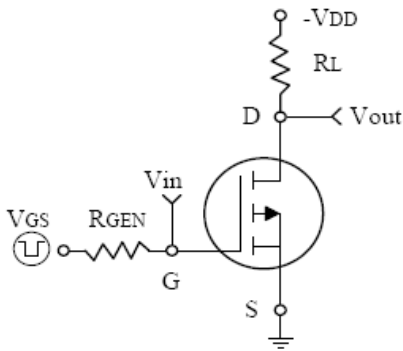


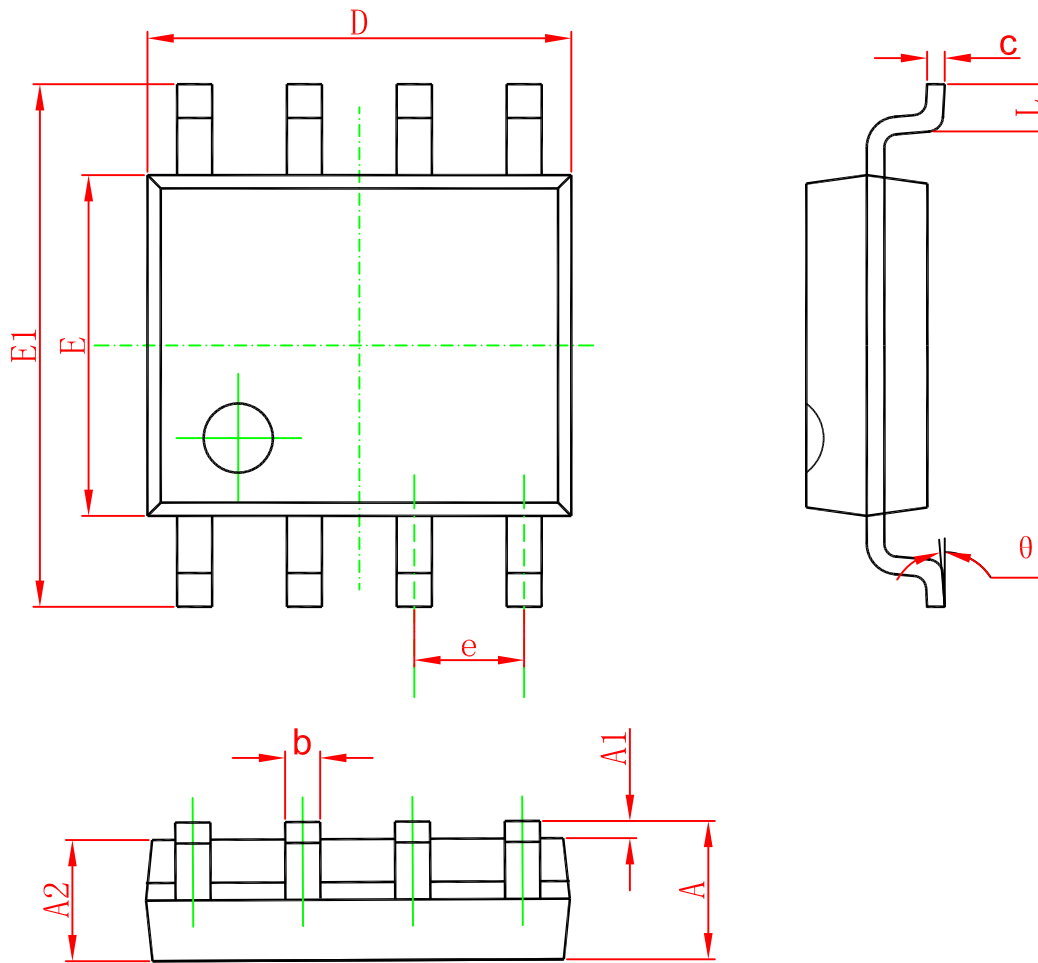
Figure 8. Body Diode Forward Voltage Variation with Source Current



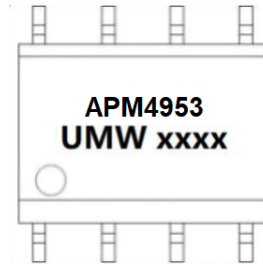
Switching Test Circuit and Switching Waveforms

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°

Marking**Ordering information**

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