

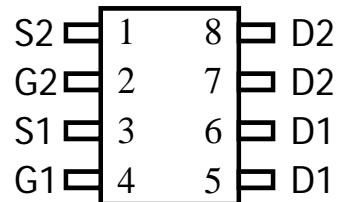
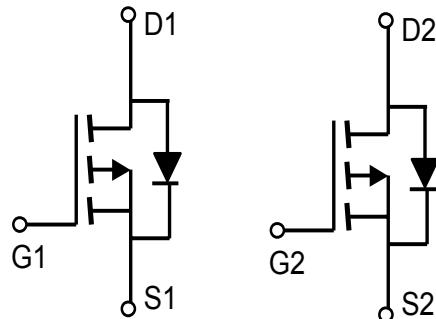
Features

V_{DS} (V) = -30V

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

$R_{DS(ON)}$ < 41m Ω (V_{GS} = -10V)

$R_{DS(ON)}$ < 75m Ω (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 _{θJA}	Thermal Resistance Junction to Ambient (PCB mounted) ^b	50	°C/W

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

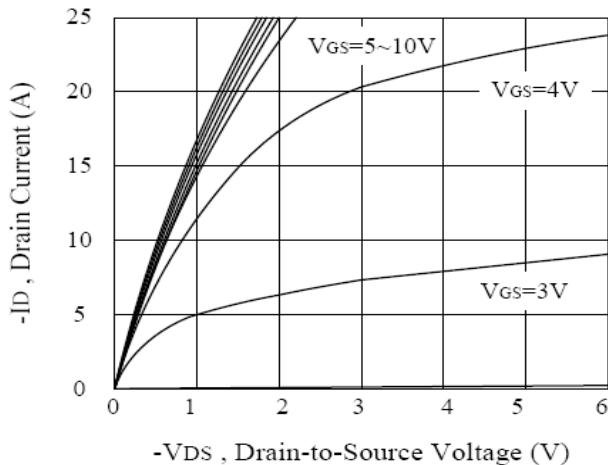
b: 1-in² 2oz Cu PCB board

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	$V_{\text{GS}}=0\text{V}, I_{\text{D}}=-250\mu\text{A}$	-30	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{\text{DS}}=-24\text{V}, V_{\text{GS}}=0\text{V}$	-	-	-1	μA
I_{GSS}	Gate-Body Leakage Current	$V_{\text{GS}}=\pm20\text{V}, V_{\text{DS}}=0\text{V}$	-	-	±100	nA
ON CHARACTERISTICS^b						
$V_{\text{GS}(\text{th})}$	Gate Threshold Voltage	$V_{\text{DS}}=V_{\text{GS}}, I_{\text{D}}=-250\mu\text{A}$	-1	-1.5	-2.5	V
$R_{\text{DS}(\text{on})}$	Drain-Source On-State Resistance	$V_{\text{GS}}=-10\text{V}, I_{\text{D}}=-5.3\text{A}$	-	38	41	$\text{m}\Omega$
		$V_{\text{GS}}=-4.5\text{V}, I_{\text{D}}=-3.9\text{A}$	-	59	75	
g_{FS}	Forward Transconductance	$V_{\text{DS}}=-10\text{V}, I_{\text{D}}=-5.3\text{A}$	-	11	-	S
DYNAMIC CHARACTERISTICS^c						
C_{iss}	Input Capacitance	$V_{\text{DS}}=-15\text{V}, V_{\text{GS}}=0\text{V}, f=1\text{MHz}$	-	504	-	PF
C_{oss}	Output Capacitance		-	68	-	
C_{rss}	Reverse Transfer Capacitance		-	56	-	
SWITCHING CHARACTERISTICS^c						
Q_g	Total Gate Charge	$V_{\text{DS}}=-15\text{V}, I_{\text{D}}=-3.6\text{A}, V_{\text{GS}}=-10\text{V}$	-	12	-	nC
Q_{gs}	Gate-Source Charge		-	2.3	-	
Q_{gd}	Gate-Drain Charge		-	1.4	-	
$t_{\text{d}(\text{on})}$	Turn-on Delay Time	$V_{\text{DD}}=-15\text{V}, R_{\text{L}}=5\Omega, I_{\text{D}}=-3\text{A}, V_{\text{GEN}}=-10\text{V}, R_{\text{G}}=6\Omega$	-	8.1	-	nS
t_r	Turn-on Rise Time		-	3.3	-	
$t_{\text{d}(\text{off})}$	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	$V_{\text{GS}}=0\text{V}, I_{\text{S}}=-1.9\text{A}$	-	-	-1.3	V

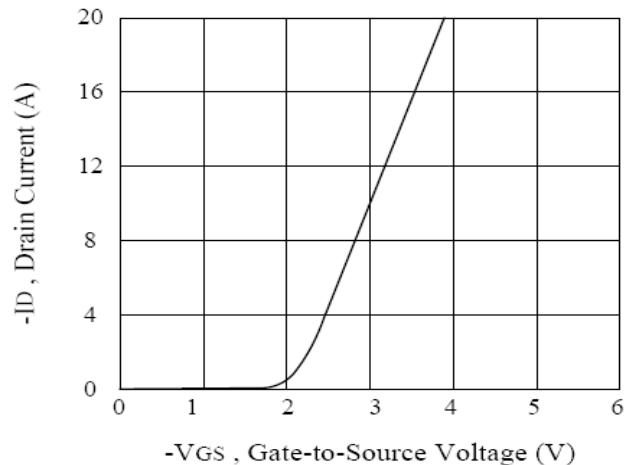
Note: Pulse Test: Pulse Width $\leq 300\text{us}$, Duty Cycle $\leq 2\%$

Characteristics Curve



-V_{DS} , Drain-to-Source Voltage (V)

Figure 1. Output Characteristics



-V_{GS} , Gate-to-Source Voltage (V)

Figure 2. Transfer Characteristics

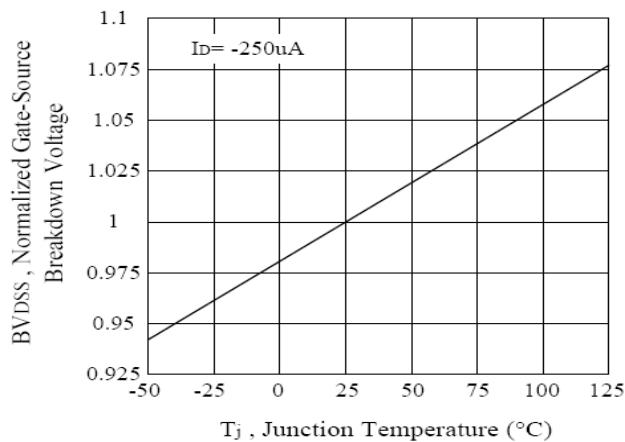


Figure 3. Breakdown Voltage Variation with Temperature

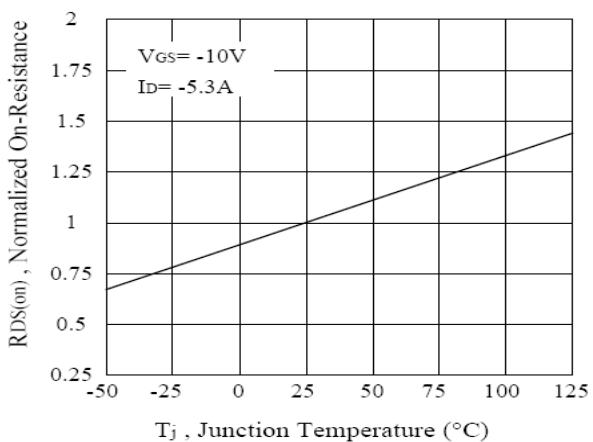


Figure 4. On-Resistance Variation with Temperature

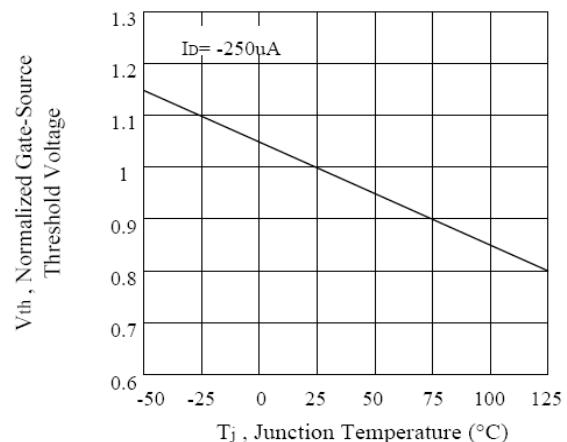


Figure 5. Gate Threshold Variation with Temperature

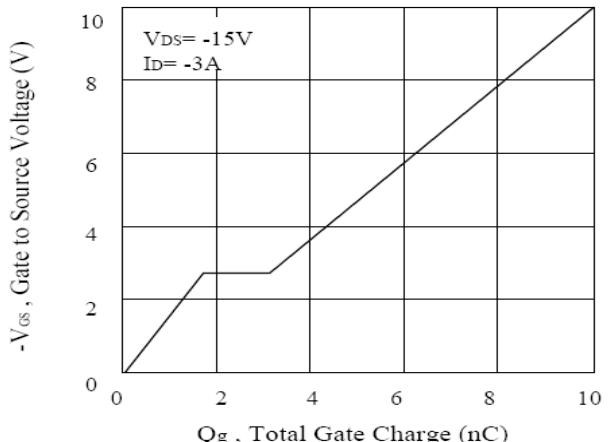
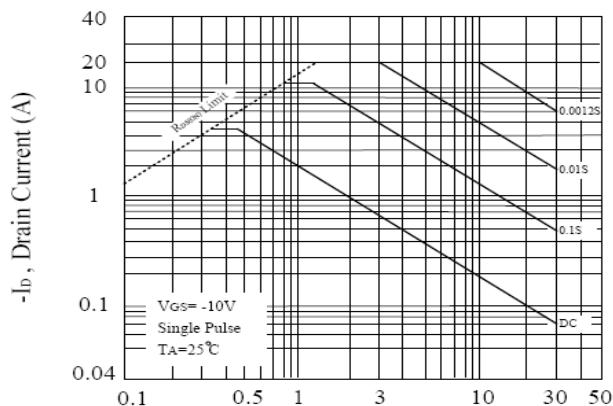
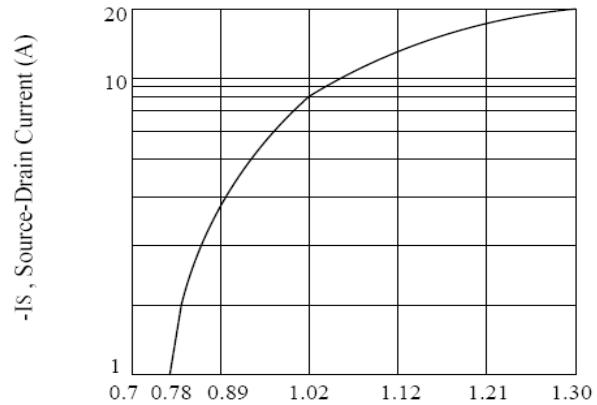


Figure 6. Gate Charge

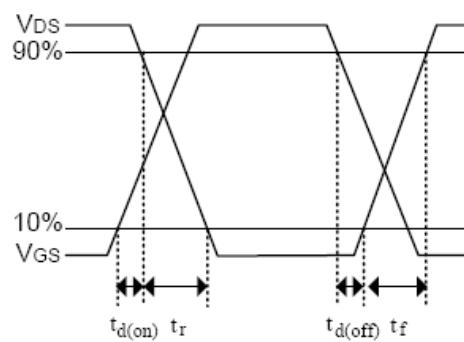
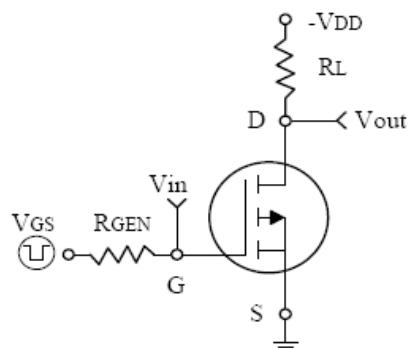
Characteristics Curve



- V_{DS} , Drain-Source Voltage (V)
 Figure 7. Maximum Safe Operating Area



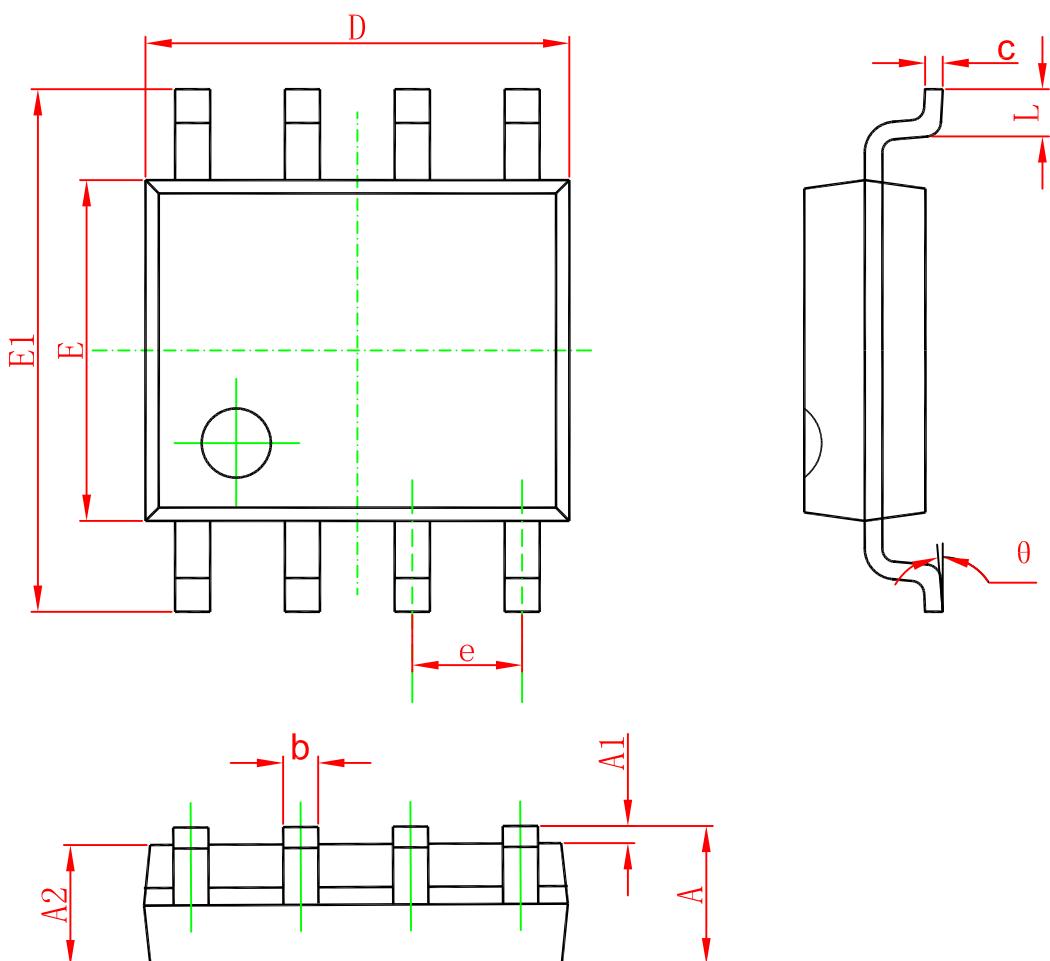
- V_{SD} , Body Diode Forward Voltage (V)
 Figure 8. Body Diode Forward Voltage Variation with Source Current



Switching Test Circuit and Switching Waveforms

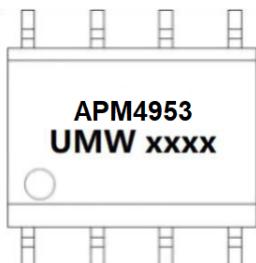
PACKAGE OUTLINE DIMENSIONS

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
UMW APM4953	SOP-8	3000	Tape and reel