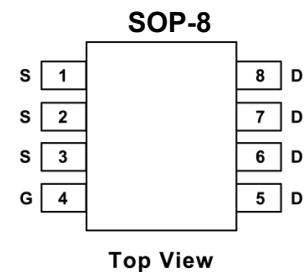


## APM4953KC-TRG-HX

## Dual P-Channel 30-V (D-S) MOSFET

PRODUCT SUMMARY		
V <sub>DS</sub> (V)	R <sub>DSON</sub> (Ω)	I <sub>D</sub> (A)
-30	53m@VGS = -10V	-4.9
	80m@VGS = -4.5V	



## FEATURES

- TrenchFET® Power MOSFET
- Super High Dense Cell Design
- Reliable and Rugged

## APPLICATIONS

- Power Management in Notebook Computer, Portable Equipment and Battery Powered Systems

## Absolute Maximum Ratings (TA = 25°C unless otherwise noted)

Symbol	Parameter	Rating	Unit
V <sub>DSS</sub>	Drain-Source Voltage	-30	V
V <sub>GSS</sub>	Gate-Source Voltage	±25	
I <sub>D</sub> *	Continuous Drain Current	-4.9	A
I <sub>DM</sub> *	Pulsed Drain Current	-20	
I <sub>S</sub> *	Diode Continuous Forward Current	-2	A
T <sub>J</sub>	Maximum Junction Temperature	150	°C
T <sub>STG</sub>	Storage Temperature Range	-55 to 150	
P <sub>D</sub> *	Power Dissipation for Single Operation	T <sub>A</sub> =25°C	2
		T <sub>A</sub> =100°C	0.8
R <sub>θJA</sub> *	Thermal Resistance-Junction to Ambient	62.5	°C/W

## Notes

\*Surface Mounted on 1in<sup>2</sup> pad area, t ≤ 10sec.

Electrical Characteristics (TA = 25°C unless otherwise noted)						
Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
B <sub>DS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>DS</sub> =250μA	-30			V
I <sub>DS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> =-24V, V <sub>GS</sub> =0V			-1	μA
		T <sub>J</sub> =85°C			-30	
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>DS</sub> =250μA	-1	-1.5	-2	V
I <sub>GS</sub>	Gate Leakage Current	V <sub>GS</sub> =±25V, V <sub>DS</sub> =0V			±100	nA
R <sub>DS(ON)</sub> ①	Drain-Source On-state Resistance	V <sub>GS</sub> =-10V, I <sub>DS</sub> =-4.9A		53	60	mΩ
		V <sub>GS</sub> =-4.5V, I <sub>DS</sub> =-3.6A		80	95	
V <sub>SD</sub> ①	Diode Forward Voltage	I <sub>SD</sub> =-1.7A, V <sub>GS</sub> =0V		-0.7	-1.3	V
<b>Gate Charge Characteristics ②</b>						
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =-15V V <sub>GS</sub> =-10V I <sub>DS</sub> =-4.9A		22.6	30	nC
	Gate-Source Charge			4.7		
	Gate-Drain Charge			2		

Electrical Characteristics (TA = 25°C unless otherwise noted)						
Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
<b>Dynamic Characteristics ②</b>						
R <sub>G</sub>	Gate Resistance	V <sub>GS</sub> =0V, V <sub>DS</sub> =0V, F=1MHz		11		Ω
C <sub>iss</sub>	Input Capacitance	V <sub>GS</sub> =0V, V <sub>DS</sub> =-25V, Frequency=1.0MHz		1260		pF
C <sub>oss</sub>	Output Capacitance			400		
C <sub>rss</sub>	Reverse Transfer Capacitance			220		
t <sub>d(ON)</sub>	Turn-on Delay Time			10	18	ns
T <sub>r</sub>	Turn-on Rise Time	V <sub>DD</sub> =-15V, I <sub>DS</sub> =-1A, R <sub>G</sub> =6Ω		15	20	
t <sub>d(OFF)</sub>	Turn-off Delay Time			22	38	
T <sub>f</sub>	Turn-off Fall Time			15	25	

### Notes

①Pulse test ; pulse width≤300μs, duty cycle≤2%.  
 ②Guaranteed by design, not subject to production testing.

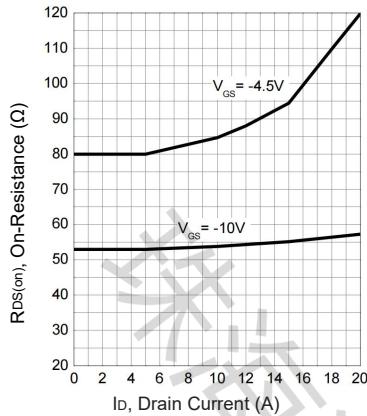


Fig 1. On-Resistance vs. Drain Current

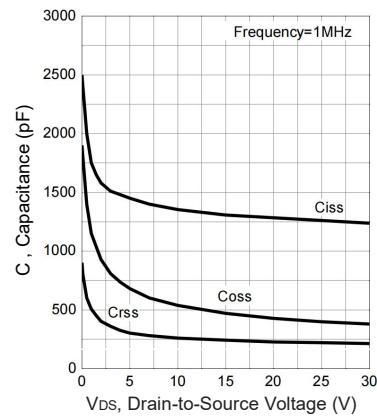


Fig 2. Capacitance

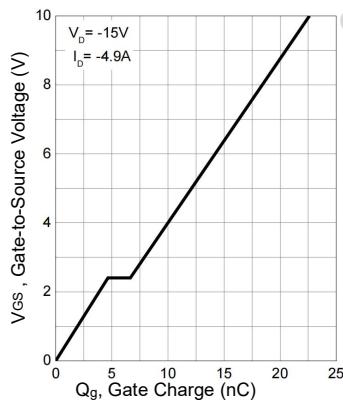


Fig 3. Gate Charge

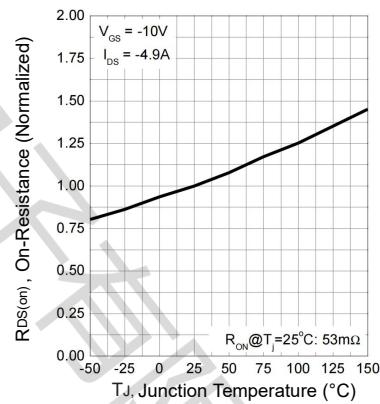


Fig 4. On-Resistance

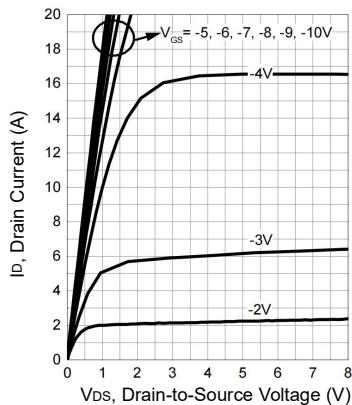


Fig 5. Output Characteristics

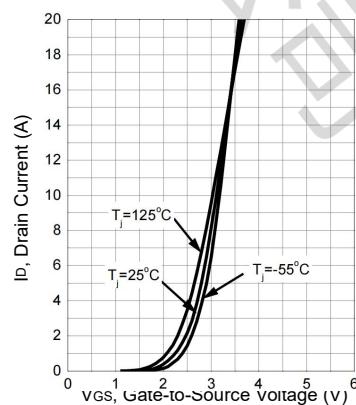


Fig 6. Transfer Characteristics

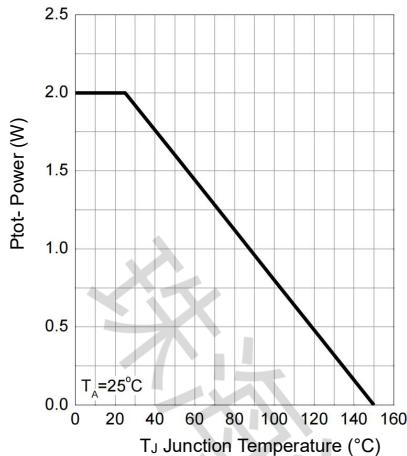


Fig 7. Power Dissipation

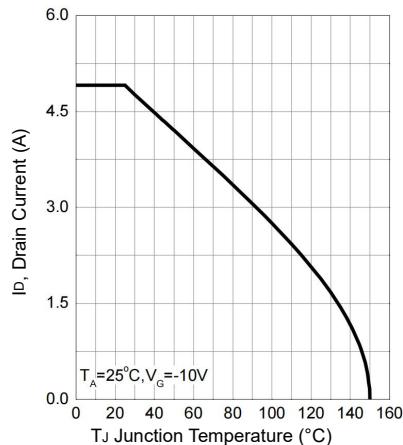


Fig 8. Drain Current

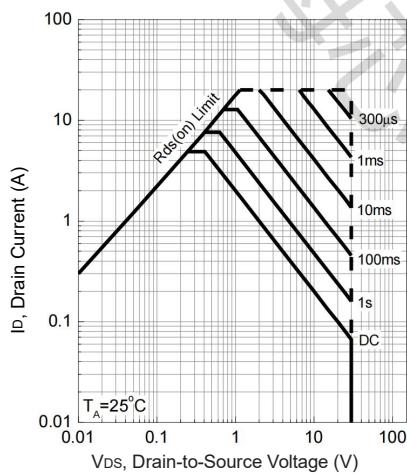


Fig 9. Safe Operating Area

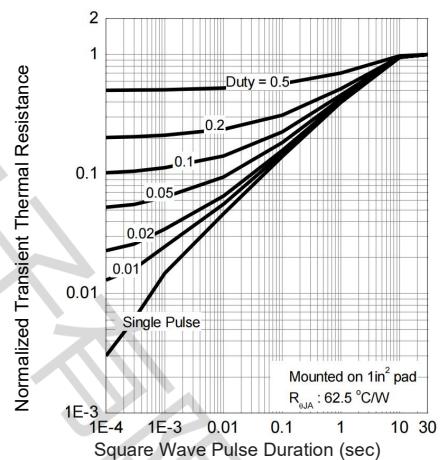


Fig 10. Transient Impedance

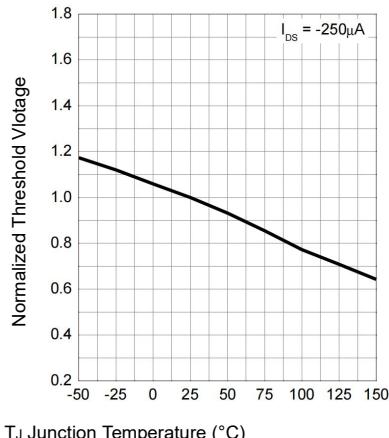


Fig 11. Gate Threshold Voltage

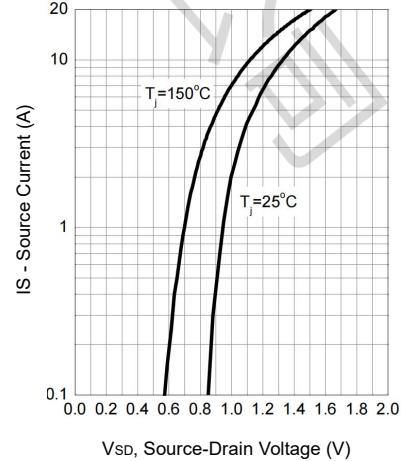
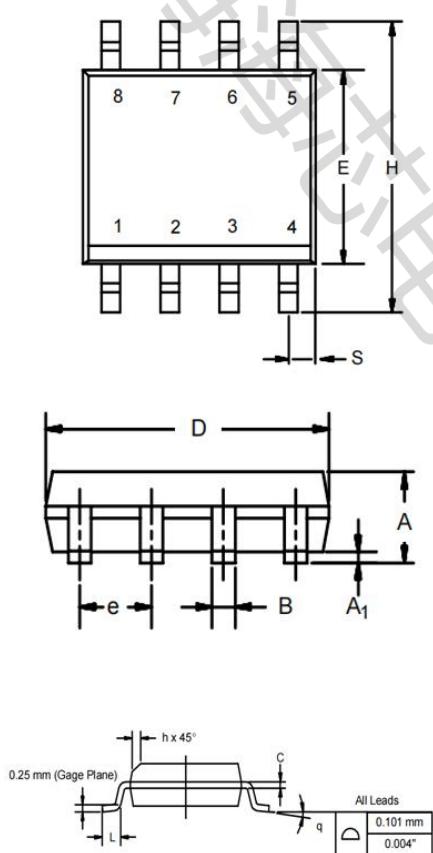


Fig 12. Source-Drain Diode Forward

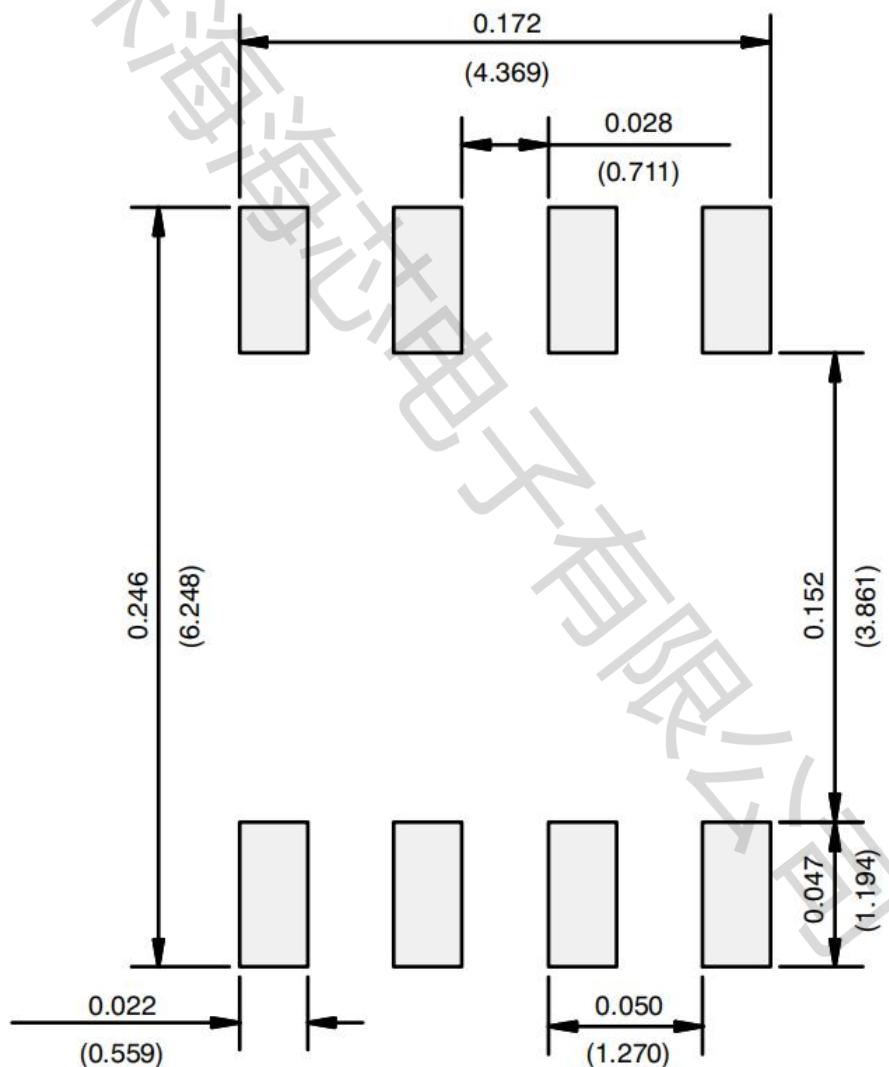
**SOP-8 Package Outline**

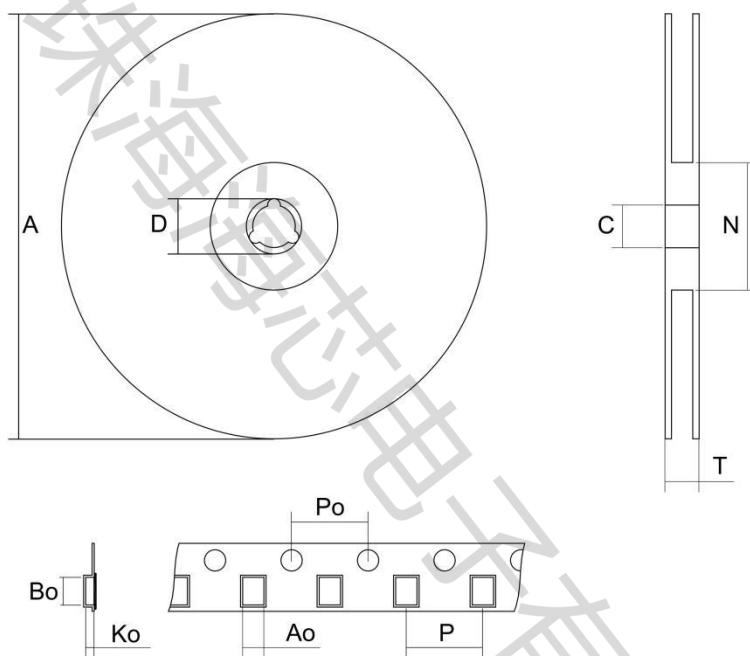
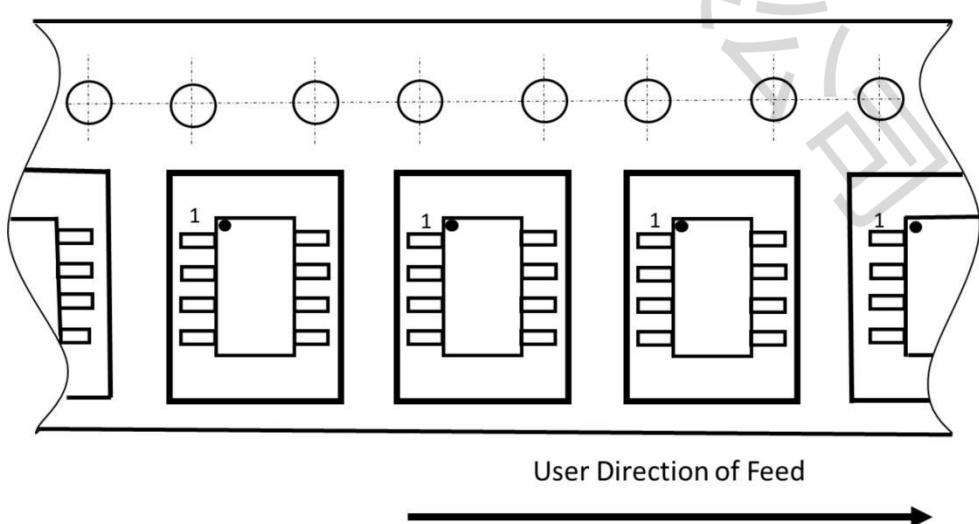
Dimensions are shown in millimeters (inches)



DIM	MILLIMETERS		INCHES	
	Min	Max	Min	Max
A	1.35	1.75	0.053	0.069
A <sub>1</sub>	0.10	0.20	0.004	0.008
B	0.35	0.51	0.014	0.020
C	0.19	0.25	0.0075	0.010
D	4.80	5.00	0.189	0.196
E	3.80	4.00	0.150	0.157
e	1.27 BSC		0.050 BSC	
H	5.80	6.20	0.228	0.244
h	0.25	0.50	0.010	0.020
L	0.50	0.93	0.020	0.037
q	0°	8°	0°	8°
S	0.44	0.64	0.018	0.026

## RECOMMENDED MINIMUM PADS FOR SOP-8



**SOP-8 packing information****SOP-8 tape and reel****Tape orientation****TYPICAL**

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