

# **MSP4953**

## **Preliminary Datasheet**

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

#### **FEATURES**

- Advance Trench Process Technology
- High Density Cell Design for Ultra Low On-resistance

Ap	pl	ica	tic	n
rμ	P	loa	uc	

- Portable Devices
- Consumer Electronics

#### Mechanical

●Case: SOP-8-Dual Package

#### **Packing Information**

Package	Packing		
SOP-8-Dual	3K/13" Reel		

Maximum Ratings (T <sub>A</sub> =25°C unless otherwise specified)					
Parameter	Symbol	Limit	Unit		
Drain-Source Voltage	V <sub>DS</sub>	30	V		
Gate-Source Voltage	V <sub>GS</sub>	±20	V		
Continuous Drain Current <sup>1)</sup>	I <sub>D</sub>	-4.2	А		
Maximum Power Dissipation	PD	1.1	W		
Pulsed Drain Current <sup>2)</sup>	I <sub>DM</sub>	-16.8	А		
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 to 150	°C		

Typical Thermal Resistance					
Parameter	Symbol	Limit	Unit		
Junction-to-Ambient Thermal Resistance		110	°C/W		

Note:

R0JA is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins mounted on a 1 inch FR-4 with 2oz. square pad of copper

$V_{\text{DS}}$	R	I <sub>D</sub> (A)	
20	65	Rdson @-10V	-4.2
-30	90	Rdson @-4.5V	-3.8
SOP-8-Dı	ual	D1 D1 F	02 02

**PRODUCTY SUMMARY** 





<b>Electrical Characteristics</b> ( $T_A = 25^{\circ}C$ UNLESS OTHERWISE NOTED)						
Characteristics	Symbol	Test Condition	Limits			11
Characteristics			Min	Тур	Max	Unit
		Static				
Drain-Source Breakdown Voltage	B <sub>VDSS</sub>	$V_{GS} = 0V, I_{D} = -250uA$	-30	-	-	V
Gate Threshold Voltage	V <sub>GS(th)</sub>	$V_{DS}=V_{GS}$ , $I_{D}=-250$ uA	-1	-	-2.1	V
Drain-Source On-State Resistance	D	V <sub>GS</sub> =10.0V, I <sub>D</sub> =-4.2A		52	65	mΩ
	INDS(on)	V <sub>GS</sub> =4.5V, ID=-3.8A		66	90	mΩ
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	$V_{DS}$ =-30V, $V_{GS}$ =0V			1.0	uA
Gate-Source Leakage Current	I <sub>GSS</sub>	$V_{GS}=\pm 20V, V_{DS}=0V$			±100	nA
		Dynamic <sup>3)</sup>				
Total Gate Charge	$Q_{g}$		-	17.5	-	nC
Gate-Source Charge	$Q_gs$	V <sub>DS</sub> =-15V, I <sub>D</sub> =-4.6A, V <sub>DS</sub> =-10 <sup>(Note 1,2)</sup>	-	1.8	-	nC
Gate-Drain Charge	$Q_{gd}$	66	-	1.5	-	nC
Input Capacitance	C <sub>iss</sub>		-	992	-	pF
Output Capacitance	C <sub>oss</sub>	V <sub>DS</sub> =-25V, V <sub>GS</sub> =0V, f=1.0MHZ	-	215	-	pF
Reverse Transfer Capacitance	C <sub>rss</sub>		-	170	-	pF
Switching						
Turn-On Delay Time	t <sub>d(on)</sub>		-	11	-	ns
Turn-On Rise Time	t <sub>r</sub>	$V_{DD}$ =-15V, I <sub>D</sub> =-2A, V <sub>GS</sub> =-10V,RG=7.5 $\Omega$ (Note 1,2)	-	14	-	ns
Turn-Off Delay Time	t <sub>d(off)</sub>		-	20	-	ns
Turn-Off Fall Time	t <sub>f</sub>		-	12	-	ns
Drain-Source Diode						
Maximum Continuous Drain-Source	ls	-	-	-	-1.2	А
Diode Forward Voltage	$V_{SD}$	$I_{S}$ =-1.0A, $V_{GS}$ =0V	-	-	-1.5	V

Note:

1. Pulse width<300us, Duty cycle<2%

2. Fused current that based on wire numbers and diameter

3. Guaranteed by design, not subject to production testing.



Package Outline Dimensions (inches and millimeters)





Motive reserves the right to make changes without further notice to any products herein. Motive makes no warranty > representation or guarantee regarding the suitability of its products for any particular purpose, nor does Motive assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in Motive data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. Motive does not convey any license under its patent rights nor the rights of others. Motive products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any such unintended or unauthorized application, Buyer shall indemnify and hold Motive and its officers, employees, subsidiaries, and distributors harmless against all claims < costs < damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that Motive was negligent regarding the design or manufacture of the part.