

MT4953

P-Channel Enhancement Mode Field Effect Transistor

Product Summary

PRODUCT SUMMARY		
V _{DSS}	I _D	R _{DS(ON)} (m Ω) Typ
-30V	-5.3A	46@ V _{GS} =-10V
		78 @ V _{GS} =-4.5V

Features

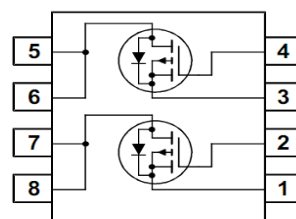
- Supper high dense cell design for low R_{DS(ON)}
- Rugged and reliable
- Simple drive requirement
- SOP-8 Package



MT Semiconductor®

<http://www.mtsemi.com>

Simplified Schematic



MARKING DIAGRAM & PIN ASSIGNMENT



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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V _{DS}	-30	V
Gate-Source Voltage	V _{GS}	±20	V
Drain Current-Continuous ^a @T _j =125°C - Pulse d^b	I _D	-5.3	A
	I _{DM}	-24	A
Drain-source Diode Forward Current ^a	I _S	-1.7	A
Maximum Power Dissipation ^a	P _D	2.5	W
Operating Junction and Storage Temperature Range	T _J , T _{STG}	-55 to 150	°C

THERMAL CHARACTERISTICS

Thermal Resistance, Junction-to Ambient ^a	R _{th JA}	50	°C/W
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ELECTRICAL CHARACTERISTICS (T_A=25 °C unless otherwise noted)

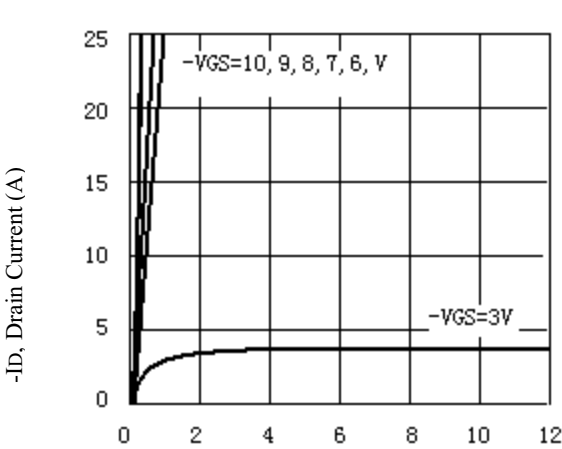
Parameter	Symbol	Condition	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V,I _D =-250μA	-30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-24V,V _{GS} =0V			-1	μA
Gate-Body Leakage	I _{GSS}	V _{GS} =±20V,V _{DS} =0V			±100	nA
ON CHARACTERITICS						
Gate Threshold Voltage	V _{GS} (th)	V _{DS} =V _{GS} ,I _D =-250μA	-1	-1.5	-2.5	V
Drain-Source On-State Resistance	R _D S(ON)	V _{GS} =-10V,I _D =-5.3A		46	55	m Ω
		V _{GS} =-4.5V,I _D =-4.2A		78	83	
Forward Transconductance	g _{FS}	V _{GS} =-5V,I _D =-5.3A		5		S
DAYNAMIC CHARACTERISTICS						
Input Capacitance	C _{ISS}	V _{DS} =-15V,V _{GS} =0V f=1.0MHz		582		pF
Output Capacitance	C _{OSS}			125		pF
Reverse Transfer Capacitance	C _{RSS}			86		pF
SWITCHING CHARACTERISISTICS						
Turn-On Delay Time	t _D (ON)	V _{DD} =-15V I _D =-5.3A, V _{GEN} =-4.5V R _L =10ohm R _{GEN} =10ohm		9		ns
Rise Time	t _r			10		ns
Turn-Off Delay Time	t _D (OFF)			38		ns
Fall Time	t _f			23		ns
Total Gate Charge	Q _g	V _{DS} =-15V,I _D =-1A V _{GS} =-10V		11.7		nC
Gate-Source Charge	Q _{gs}			2.1		nC
Gate-Drain Charge	Q _{gd}			2.9		nC

ELECTRICAL CHARACTERICS (TA=25℃ unless otherwise noted)

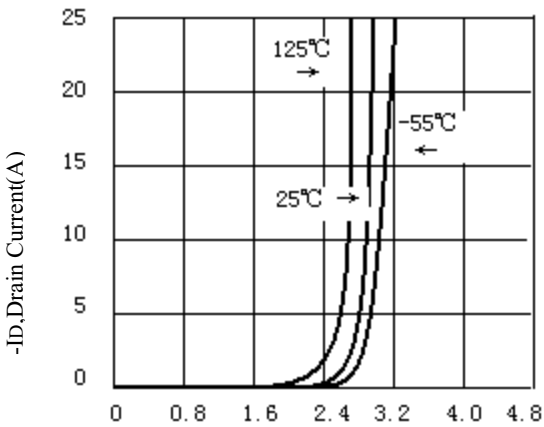
Parameter	Symbol	Condition	Min	Typ	Max	Unit
DRAIN-SOURCE DIODE CHARACTERISTICS						
Diode Forward Voltage	VSD	VGS=0V,Is=-1.7A		-0.84	-1.2	V

Notes

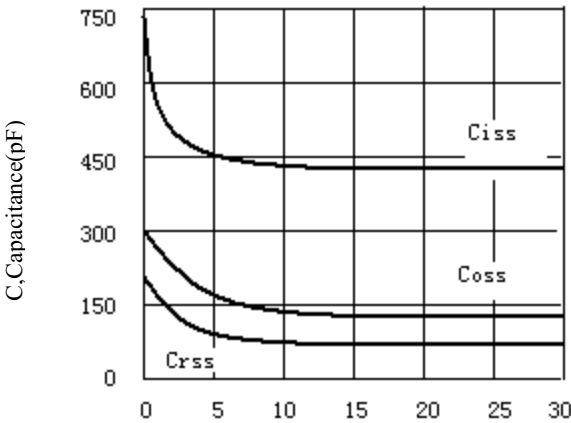
- a. Surface Mounted on FR4 Board, t≤10sec
- b. Pulse Test: Pulse Width≤300Us, Duty Cycle≤2%
- c. Guaranteed by design, not subject to production testing.



- VDS, Drain-to-Source Voltage (V)
Figure 1.Output Characteristics



-VGS, Gate-to-source Voltage (V)
Figure 2.Transfer Characteristics



- VGS, Drain-to Source Voltage
Figure3.Capacitance

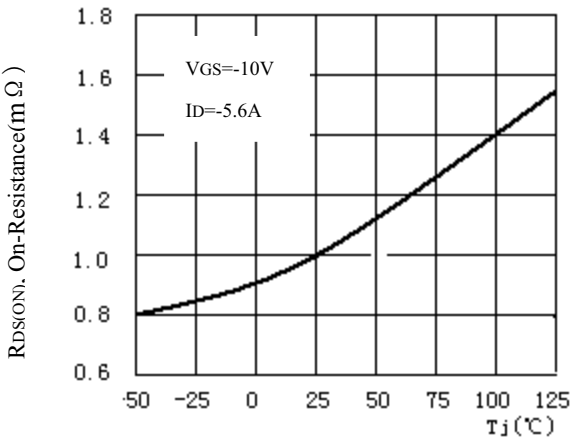


Figure4. On-Resistance Variation with Temperature

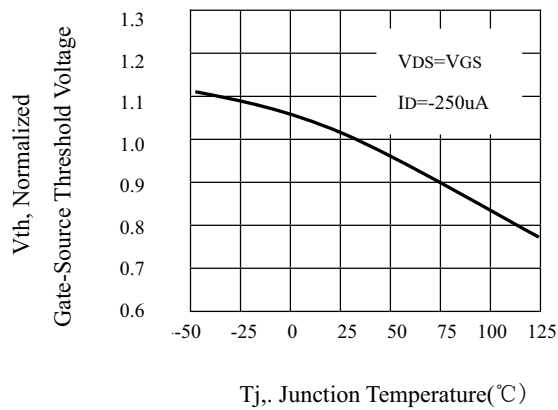


Figure 5. Gate Threshold Variation With Temperature

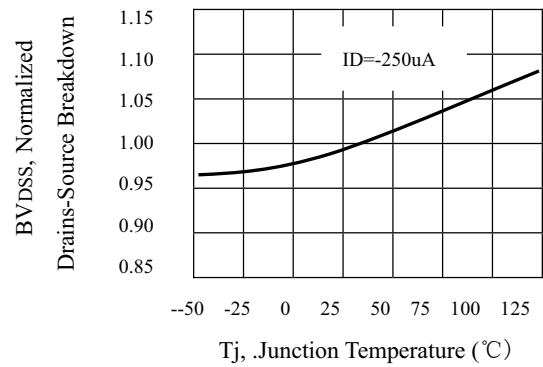


Figure 6. Breakdown Voltage Variation With Temperature

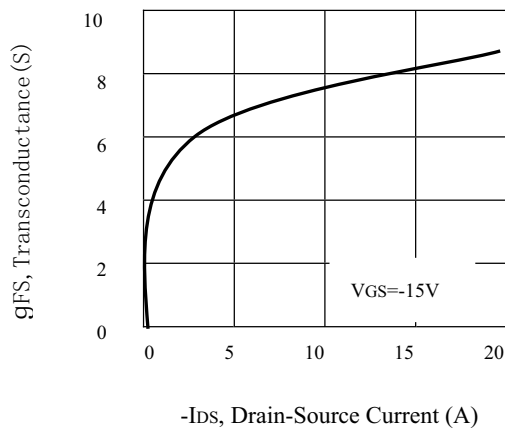


Figure 7. Transconductance Variation With Drain Current

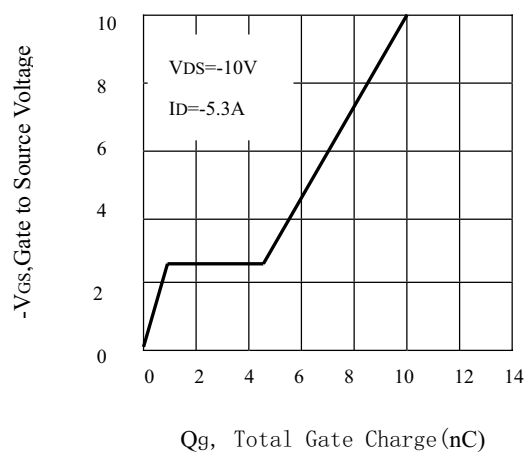


Figure 9. Gate Charge

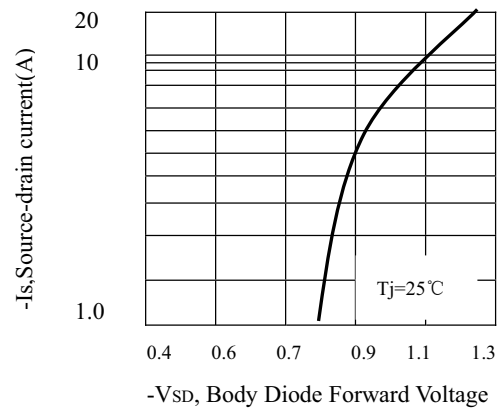


Figure 8. Body Diode Forward Voltage Variation with Source Current

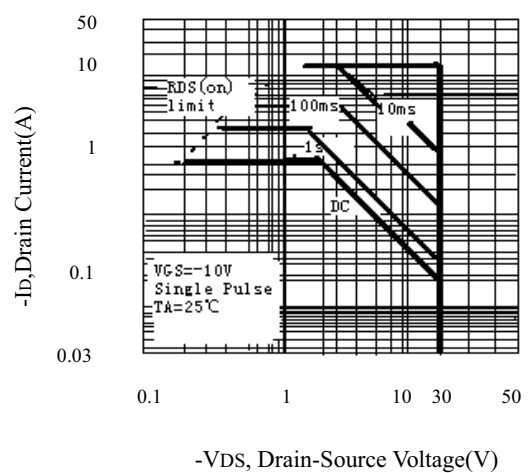


Figure 10. Maximum Safe Operating Area

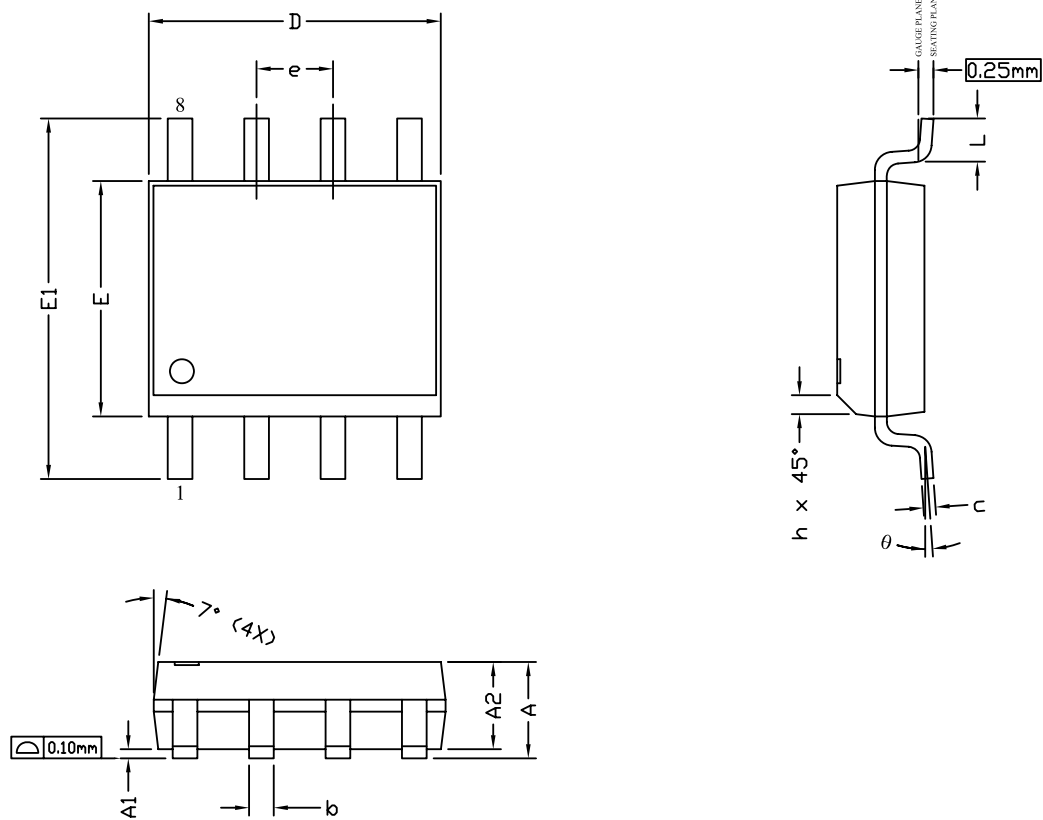
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PO-00004

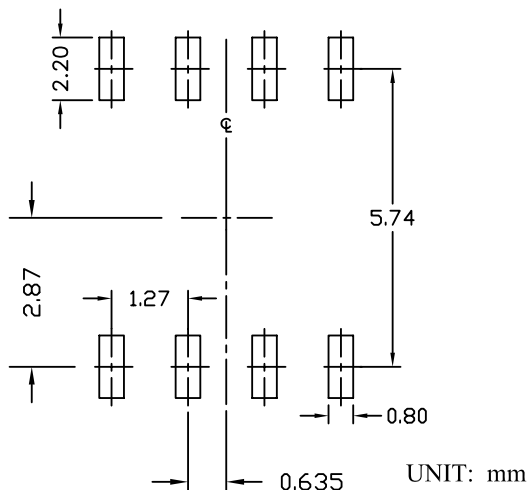
Version

rev H

S08 PACKAGE OUTLINE



RECOMMENDED LAND PATTERN



SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	1.35	1.65	1.75	0.053	0.065	0.069
A1	0.10	—	0.25	0.004	—	0.010
A2	1.25	1.50	1.65	0.049	0.059	0.065
b	0.31	—	0.51	0.012	—	0.020
c	0.17	—	0.25	0.007	—	0.010
D	4.80	4.90	5.00	0.189	0.193	0.197
E	3.80	3.90	4.00	0.150	0.154	0.157
e	1.27 BSC			0.050 BSC		
E1	5.80	6.00	6.20	0.228	0.236	0.244
h	0.25	—	0.50	0.010	—	0.020
L	0.40	—	1.27	0.016	—	0.050
θ	0°	—	8°	0°	—	8°

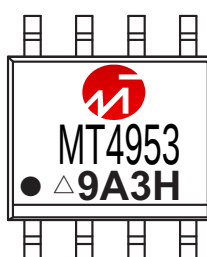
NOTE

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DIMENSIONS ARE INCLUSIVE OF PLATING.
3. PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.
MOLD FLASH AT THE NON-LEAD SIDES SHOULD BE LESS THAN 6 MILS EACH.
4. DIMENSION L IS MEASURED IN GAUGE PLANE.
5. CONTROLLING DIMENSION IS MILLIMETER.
CONVERTED INCH DIMENSIONS ARE NOT NECESSARILY EXACT.

Part Marking Information

SO-8 (PMG Code)

SO-8 Devices



MT4953A = Example Base Part Number

● = Pin 1 Indicator

△ = ESD Symbol (⚡)

9 = Year Code

A = Month Code

3 = Week Code

H = Assembly Factory Code

NOTE:

1. For analog switches base part includes DG prefix. Package suffix may or may not be present, depending on room available.

The current marking strategy is reflected. Contact your local sales representative for historical marking strategies for these packages.

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