

General Description

The MY4953 uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 4.5V. This device is suitable for use as a Battery protection or in other Switching application.

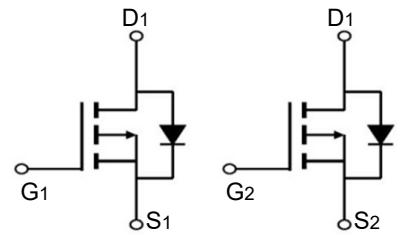
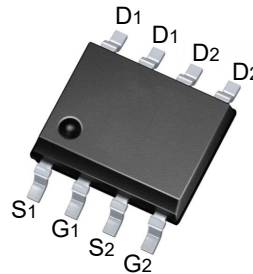


Features

V_{DSS}	-30	V
I_D	-5.5	A
$R_{DS(ON)}$ (at $V_{GS} = -10V$)	34	$m\Omega$
$R_{DS(ON)}$ (at $V_{GS} = -4.5V$)	50	$m\Omega$

Application

- Battery protection
- Load switch
- Uninterruptible power supply



Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
MY4953	SOP-8	MY4953	3000

Absolute Maximum Ratings ($T_A=25^\circ C$ unless otherwise noted)

Symbol	Parameter	Rating	Unit	
V_{DSS}	Drain-Source Voltage	-30	V	
V_{GSS}	Gate-Source Voltage	± 20		
I_D^*	Continuous Drain Current	-5.5	A	
I_{DM}^*	Pulsed Drain Current			-20
I_S^*	Diode Continuous Forward Current	-2	A	
T_J	Maximum Junction Temperature	150	$^\circ C$	
T_{STG}	Storage Temperature Range	-55 to 150		
P_D^*	Power Dissipation for Single Operation	$T_A=25^\circ C$	2	W
		$T_A=100^\circ C$	0.8	
$R_{\theta JA}^*$	Thermal Resistance-Junction to Ambient	62.5	$^\circ C/W$	

Note: *Surface Mounted on 1in² pad area, t ≤ 10sec.

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

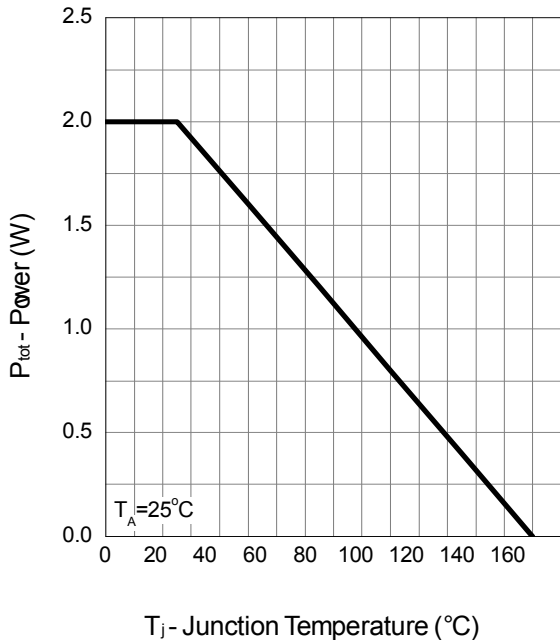
Symbol	Parameter	Test Condition	MY4953			Unit
			Min.	Typ.	Max.	
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_{DS}=250\mu A$	-30	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=-24V, V_{GS}=0V$	-	-	-1	μA
		$T_J=85^\circ C$	-	-	-30	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_{DS}=250\mu A$	-1	-1.5	-2.3	V
I_{GSS}	Gate Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
$R_{DS(ON)}^a$	Drain-Source On-state Resistance	$V_{GS}=-10V, I_{DS}=-6.5A$	-	34	45	m Ω
		$V_{GS}=-4.5V, I_{DS}=-5.6A$	-	50	65	
V^{aSD}	Diode Forward Voltage	$I_{SD}=-1.7A, V_{GS}=0V$	-	-0.8	-1.3	V
Gate Charge Characteristics ^b						
Q_g	Total Gate Charge	$V_{DS}=-15V, V_{GS}=-10V, I_{DS}=-4.9A$	-	11.6	16	nC
Q_{gs}	Gate-Source Charge		-	1.3	-	
Q_{gd}	Gate-Drain Charge		-	2.5	-	
Dynamic Characteristics ^b						
R_G	Gate Resistance	$V_{GS}=0V, V_{DS}=0V, F=1MHz$	-	8	-	Ω
C_{iss}	Input Capacitance	$V_{GS}=0V, V_{DS}=-15V, \text{Frequency}=1.0MHz$	-	625	-	pF
C_{oss}	Output Capacitance		-	100	-	
C_{rss}	Reverse Transfer Capacitance		-	60	-	
$t_{d(ON)}$	Turn-on Delay Time	$V_{DD}=-15V, R_L=15\Omega, I_{DS}=-1A, V_{GEN}=-10V, R_G=6\Omega$	-	6	12	ns
t_r	Turn-on Rise Time		-	12	23	
$t_{d(OFF)}$	Turn-off Delay Time		-	25	46	
t_f	Turn-off Fall Time		-	6	12	
t_{rr}	Reverse Recovery Time	$I_{DS}=-4.9A, di_{SD}/dt=100A/\mu s$	-	14	-	ns
Q_{rr}	Reverse Recovery Charge		-	5	-	nC

Notes: a : Pulse test ; pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

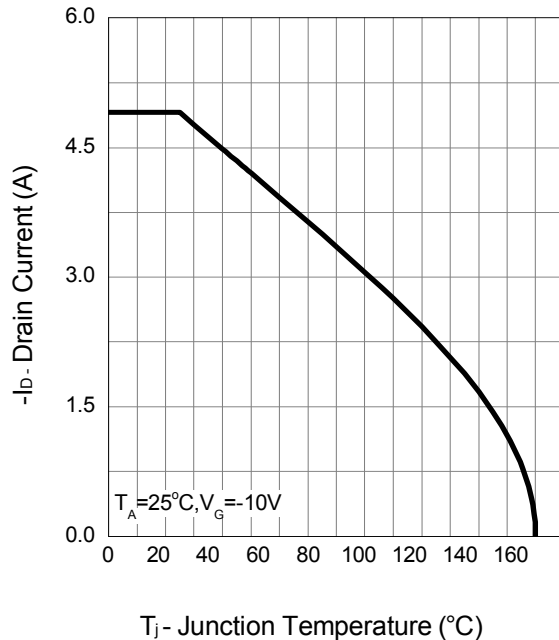
b : Guaranteed by design, not subject to production testing.

Typical Characteristics

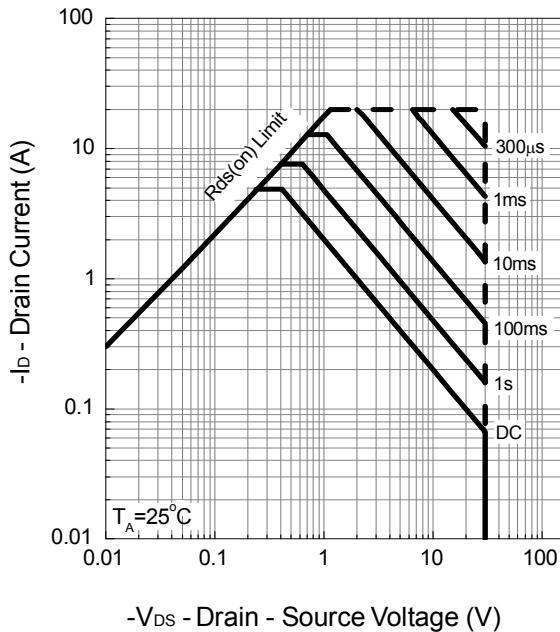
Power Dissipation



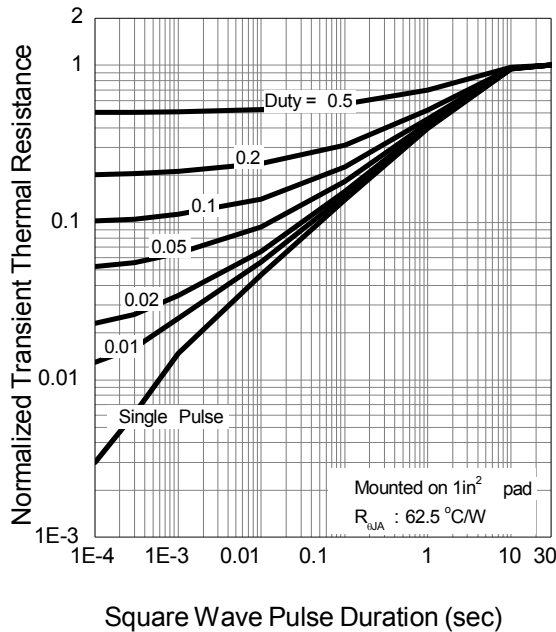
Drain Current

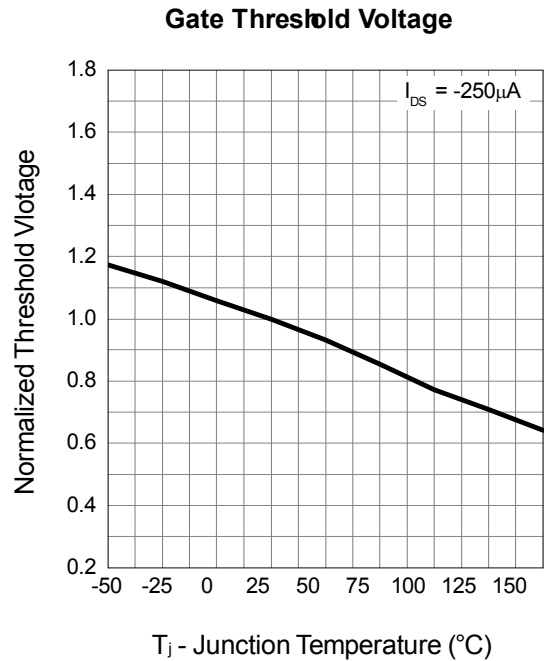
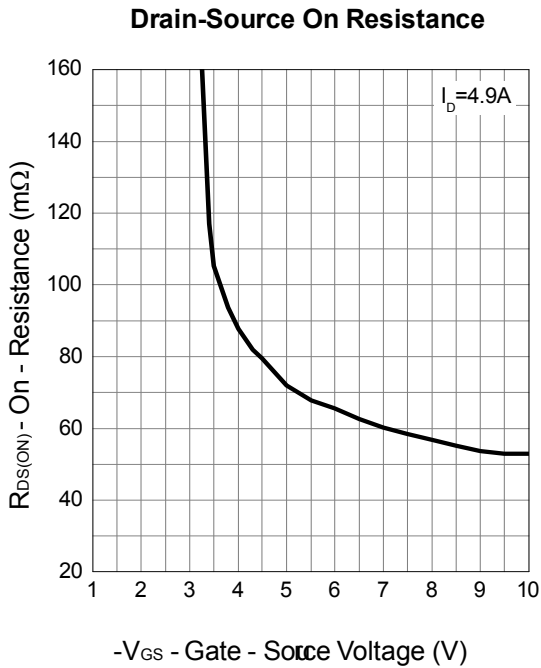
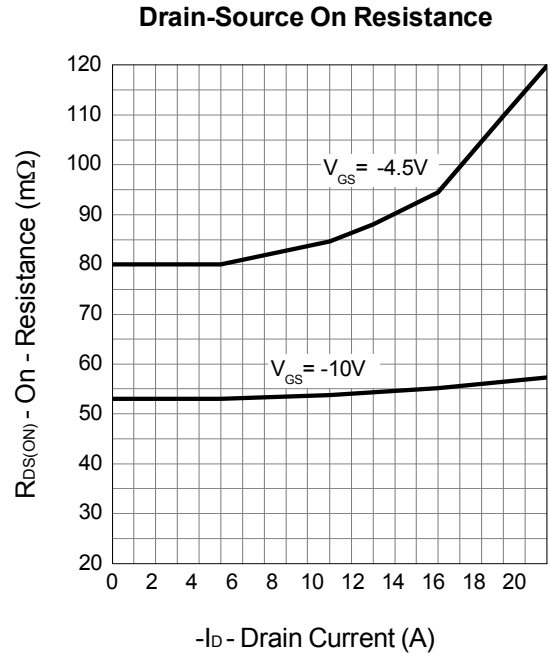
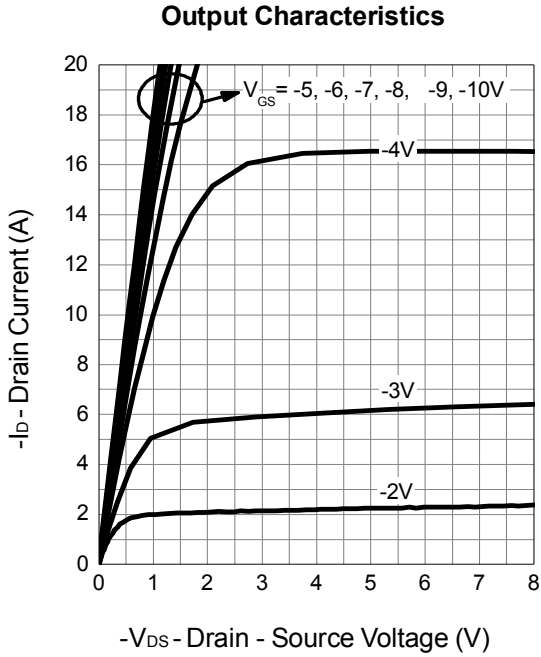


Safe Operation Area

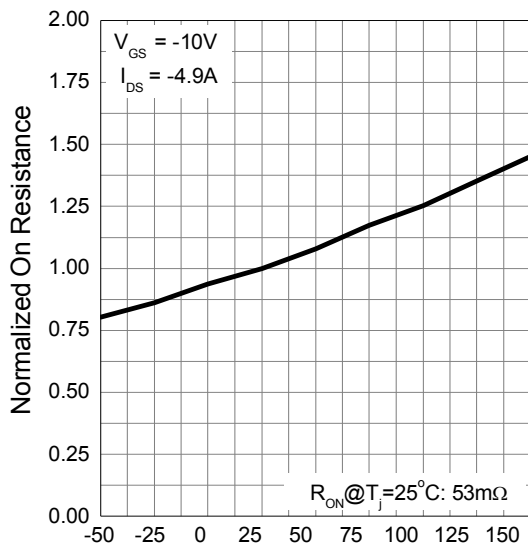


Thermal Transient Impedance



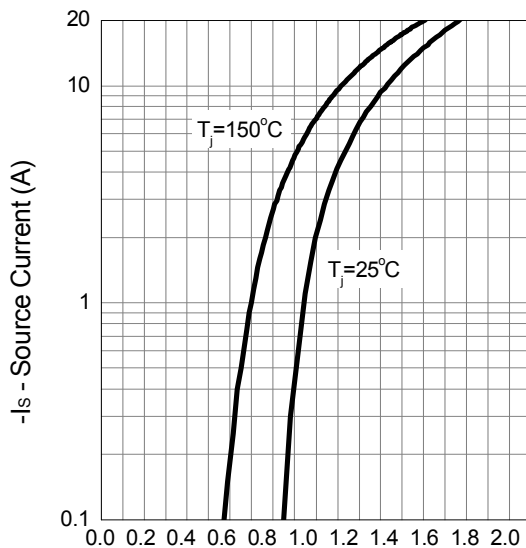


Drain-Source On Resistance



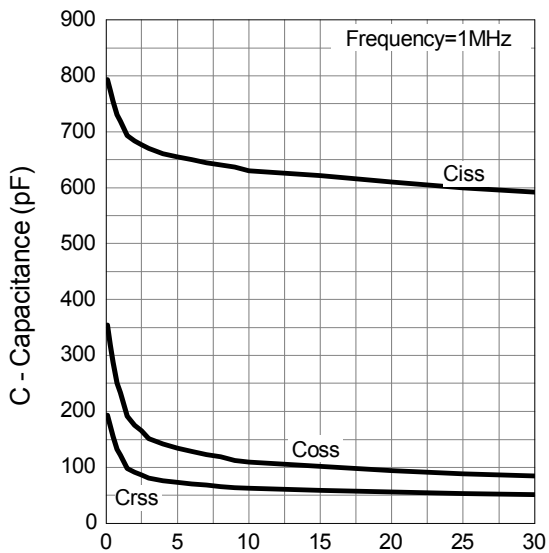
T_j - Junction Temperature ($^\circ C$)

Source-Drain Diode Forward



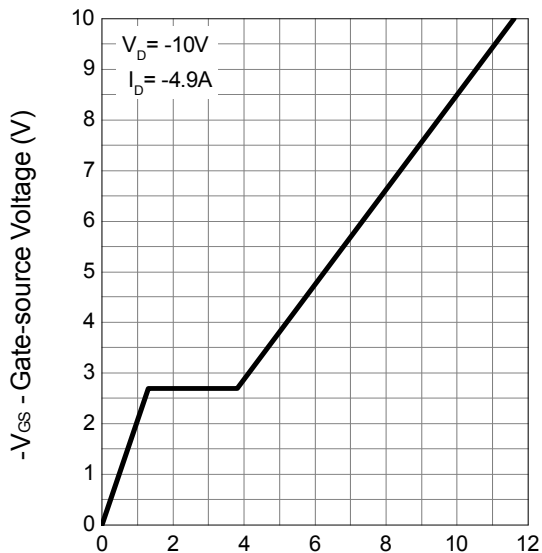
$-V_{SD}$ - Source-Drain Voltage (V)

Capacitance



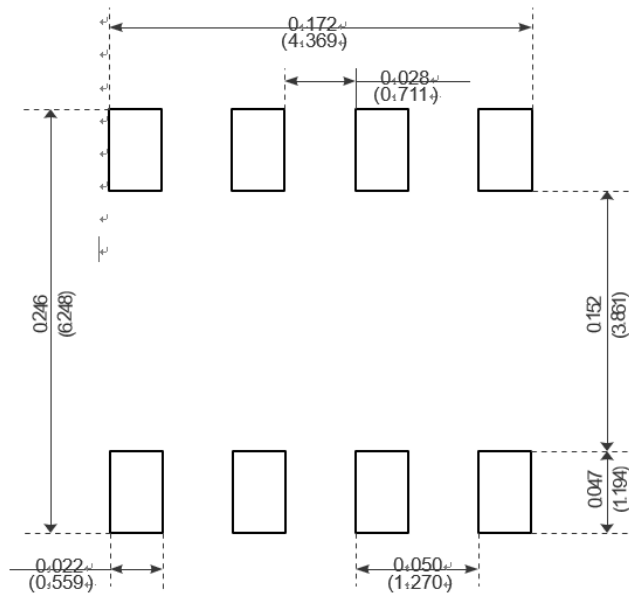
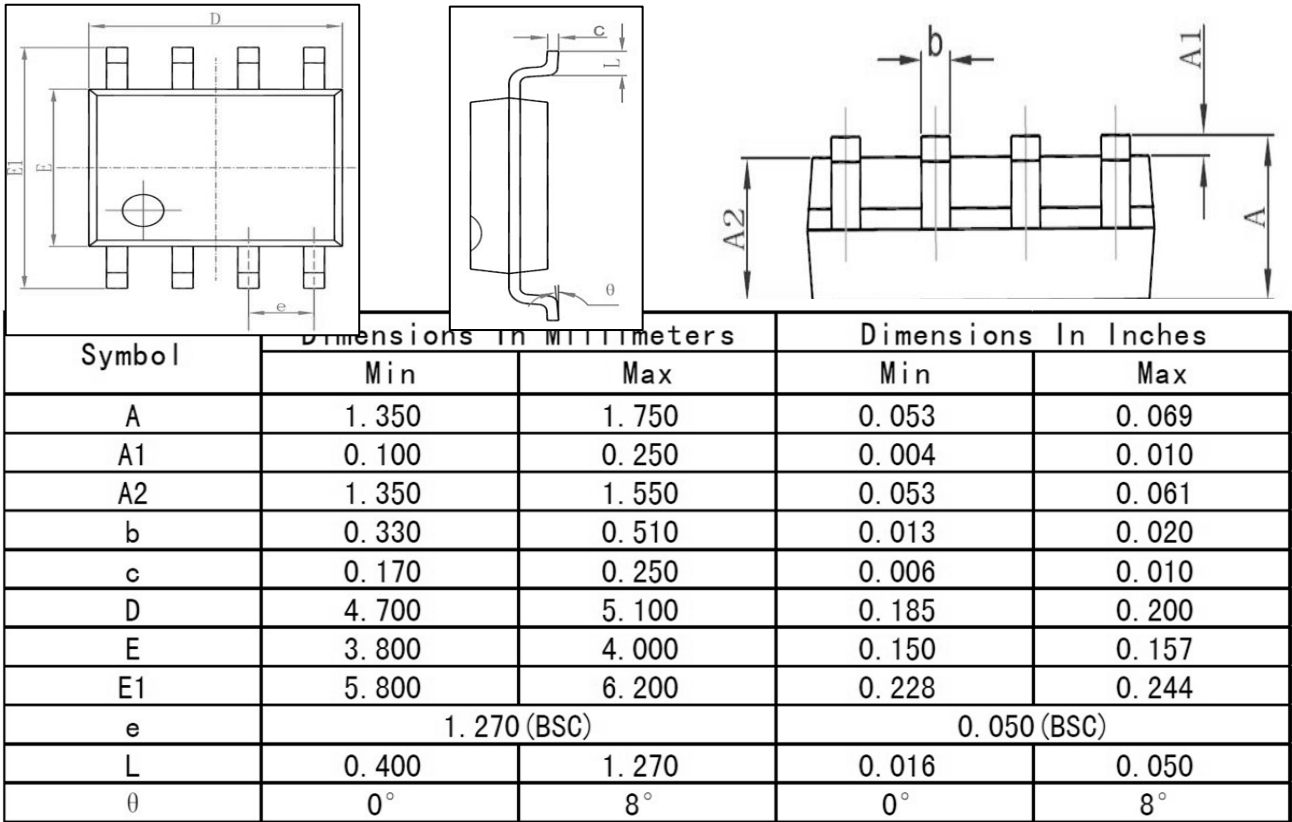
$-V_{DS}$ - Drain-Source Voltage (V)

Gate Charge



Q_G - Gate Charge (nC)

Package Mechanical Data-SOP-8



Recommended Minimum Pads