# 查询FDW2502供应商

# 捷多邦,专业PCB打样工厂,24小时加急出货



SEMICONDUCTOR TM

# **FDW2502P**

# Dual P-Channel 2.5V Specified PowerTrench<sup>®</sup> MOSFET

# **General Description**

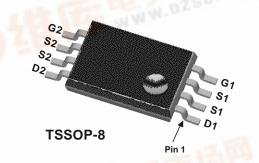
This P-Channel 2.5V specified MOSFET is a rugged gate version of Fairchild's Semiconductor's advanced PowerTrench process. It has been optimized for power management applications with a wide range of gate drive voltage (2.5V -12V).

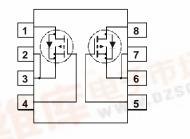
## Applications

- · Load switch
- Motor drive
- DC/DC conversion
- Power management

### **Features**

- -4.4 A, -20 V.  $R_{DS(ON)} = 0.035 \ \Omega \ @ V_{GS} = -4.5 \ V$  $R_{DS(ON)} = 0.057 \ \Omega \ @ V_{GS} = -2.5 \ V.$
- Extended V<sub>GSS</sub> range (±12V) for battery applications.
- High performance trench technology for extremely W.DZSC.C low  $R_{DS(ON)}$  .
- Low profile TSSOP-8 package.





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

Symbol	Parameter		Ratings	Units
V <sub>DSS</sub>	Drain-Source Voltage		-20	V
V <sub>GSS</sub>	Gate-Source Voltage		±12	V
I <sub>D</sub>	Drain Current – Continuous	(Note 1a)	-4.4	А
	- Pulsed		-30	C.C.
P <sub>D</sub>	Power Dissipation for Single Operation	(Note 1a)	1.0	W
		(Note 1b)	0.6	
T <sub>J</sub> , T <sub>STG</sub>	Operating and Storage Junction Temperature Range		-55 to +150	°C
Therma	I Characteristics			
R <sub>eja</sub>	Thermal Resistance, Junction-to-Ambient	(Note 1a)	125	°C/W
	WWW.	(Note 1b)	208	

# Package Marking and Ordering Information

Device Marking	Device	Reel Size	Tape width	Quantity
2502P	FDW2502P	13"	12mm	3000 units

2000 Fairchild Semiconductor Corporation

dzsc.com

FDW2502P Rev. C1 (W)

# FDW2502P

May 2000

PRELIMINARY

Symbol	Parameter	Test Conditions	Min	Тур	Max	Units
Off Char	acteristics					
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	$V_{GS} = 0 V, I_{D} = -250 \mu A$	-20			V
<u>ΔBVdss</u> ΔTj	Breakdown Voltage Temperature Coefficient	$I_D = -250 \ \mu\text{A}$ , Referenced to 25°C		-17		mV/°C
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	$V_{DS} = -16 \text{ V},  V_{GS} = 0 \text{ V}$			-1	μA
	Gate-Body Leakage, Forward	$V_{GS} = -12 \text{ V}, \qquad V_{DS} = 0 \text{ V}$			-100	nA
I <sub>GSSR</sub>	Gate-Body Leakage, Reverse	$V_{GS} = 12 V$ $V_{DS} = 0 V$			100	nA
On Char	acteristics (Note 2)					
V <sub>GS(th)</sub>	Gate Threshold Voltage	$V_{DS} = V_{GS}$ , $I_D = -250 \ \mu A$	-0.4	-1.0	-1.5	V
$rac{\Delta V_{GS(th)}}{\Delta T_J}$	Gate Threshold Voltage Temperature Coefficient	$I_D = -250 \ \mu A$ , Referenced to $25^{\circ}C$		3.1		mV/°C
R <sub>DS(on)</sub>	Static Drain–Source On–Resistance	$ \begin{array}{l} V_{GS} = -4.5 \ V,  I_D = -4.4 \ A \\ V_{GS} = -4.5 \ V, \ I_D = -4.4 \ , T_J = 125^\circ C \\ V_{GS} = -2.5 \ V,  I_D = -3.3 \ A \end{array} $		0.028 0.039 0.043	0.035 0.056 0.057	Ω
I <sub>D(on)</sub>	On-State Drain Current	$V_{GS} = -4.5 \text{ V},  V_{DS} = -5 \text{ V}$	-30			А
<b>g</b> fs	Forward Transconductance	$V_{DS} = -5 V$ , $I_{D} = -4.4 A$		17		S
Dynamic	c Characteristics					
C <sub>iss</sub>	Input Capacitance			1330		pF
Coss	Output Capacitance	$V_{DS} = -10 V$ , $V_{GS} = 0 V$ , f = 1.0 MHz		552		pF
C <sub>rss</sub>	Reverse Transfer Capacitance	T = T.0 WITZ		153		pF
Switchir	ng Characteristics (Note 2)					
t <sub>d(on)</sub>	Turn–On Delay Time			12	25	ns
t <sub>r</sub>	Turn–On Rise Time	$V_{DD} = -10 \text{ V},  I_D = -1 \text{ A},$		19	40	ns
t <sub>d(off)</sub>	Turn–Off Delay Time	$ \begin{array}{ll} V_{\text{DD}} = -10 \ V, & I_{\text{D}} = -1 \ A, \\ V_{\text{GS}} = -4.5 \ V, & R_{\text{GEN}} = 6 \ \Omega \end{array} $		60	100	ns
t <sub>f</sub>	Turn-Off Fall Time			37	70	ns
Q <sub>g</sub>	Total Gate Charge			14	20	nC
Q <sub>gs</sub>	Gate-Source Charge	$V_{DS} = -5 V,$ $I_D = -4.4 A,$ $V_{GS} = -4.5 V$		3.0		nC
Q <sub>gd</sub>	Gate-Drain Charge			3.9		nC
Drain-S	ource Diode Characteristics	and Maximum Ratings				
I <sub>S</sub>	Maximum Continuous Drain-Source	<b>v</b>			-0.83	А
V <sub>SD</sub>	Drain-Source Diode Forward Voltage	$V_{GS} = 0 V$ , $I_{S} = -0.83 A$ (Note 2)		-0.7	-1.2	V

Notes:

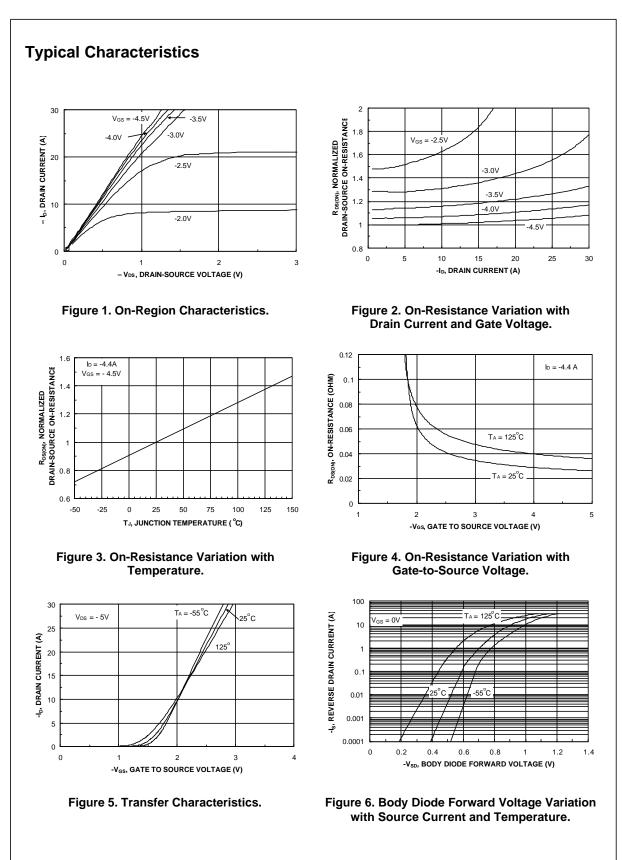
1.  $R_{\theta JA}$  is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins.  $R_{\theta JC}$  is guaranteed by design while  $R_{\theta CA}$  is determined by the user's board design.

a)  $R_{\theta JA}$  is 125°C/W (steady state) when mounted on a 1 inch² copper pad on FR-4.

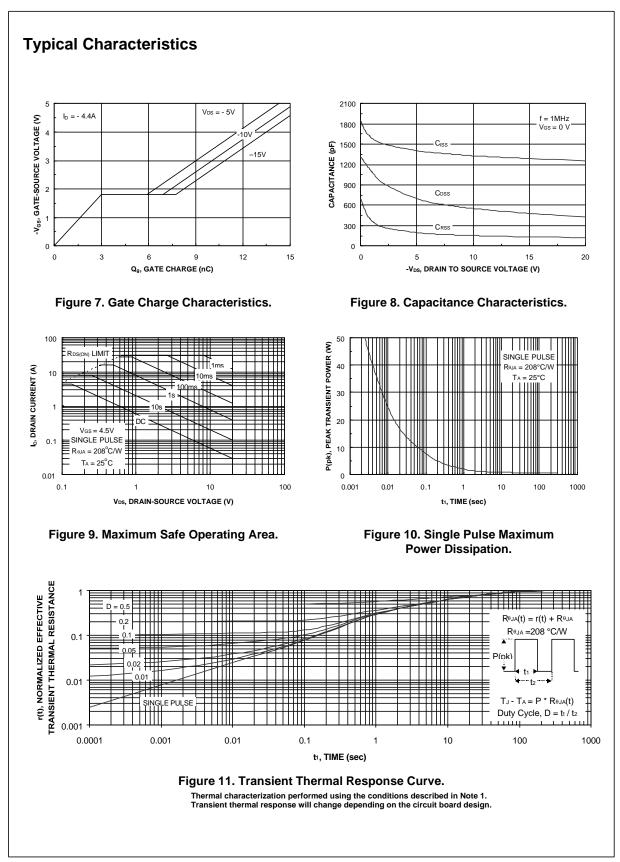
b) R<sub>0JA</sub> is 208°C/W (steady state) when mounted on a minimum copper pad on FR-4.

2. Pulse Test: Pulse Width < 300 $\mu$ s, Duty Cycle < 2.0%

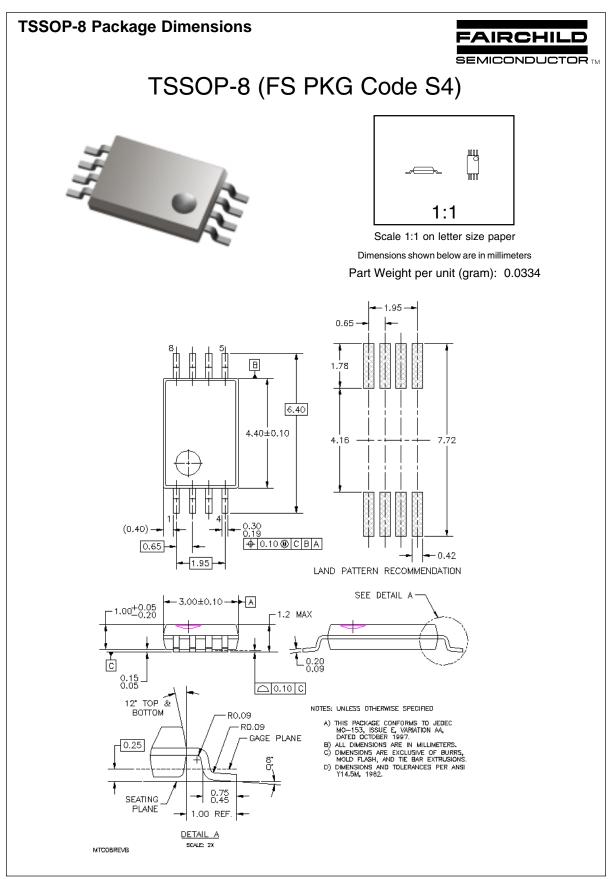
# FDW2502P



# FDW2502P



# FDW2502P



### TRADEMARKS

The following are registered and unregistered trademarks Fairchild Semiconductor owns or is authorized to use and is not intended to be an exhaustive list of all such trademarks.

	ACEx™	HiSeC™
l	Bottomless™	ISOPLANAR™
(	CoolFET™	MICROWIRE™
(	CROSSVOLT™	POP™
l	E²CMOS™	PowerTrench <sup>®</sup>
I	FACT™	QFET™
I	FACT Quiet Series™	QS™
	FAST <sup>®</sup>	Quiet Series™
	FASTr™	SuperSOT™-3
(	GTO™	SuperSOT™-6

#### DISCLAIMER

FAIRCHILD SEMICONDUCTOR RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. FAIRCHILD DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENSE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

#### LIFE SUPPORT POLICY

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF FAIRCHILD SEMICONDUCTOR CORPORATION. As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, or (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user. 2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

SuperSOT<sup>™</sup>-8 SyncFET<sup>™</sup> TinyLogic<sup>™</sup> UHC<sup>™</sup> VCX<sup>™</sup>

#### PRODUCT STATUS DEFINITIONS

#### Definition of Terms

Datasheet Identification	Product Status	Definition   This datasheet contains the design specifications for product development. Specifications may change in any manner without notice.   This datasheet contains preliminary data, and supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.   This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.   This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.   This datasheet contains specifications on a product that has been discontinued by Fairchild semiconductor. The datasheet is printed for reference information only		
Advance Information	Formative or In Design			
Preliminary	First Production			
No Identification Needed	Full Production			
Obsolete	Not In Production			