

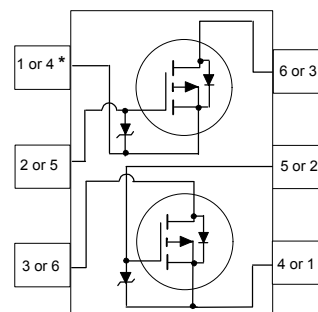
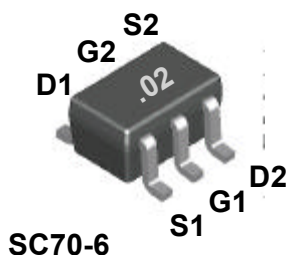
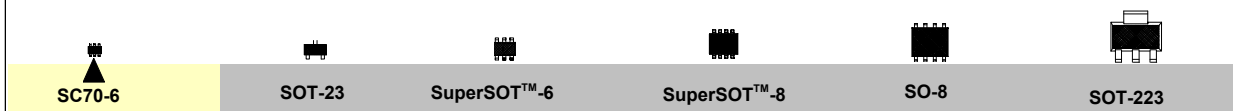
FDG6302P Dual P-Channel, Digital FET

General Description

These dual P-Channel logic level enhancement mode field effect transistors are produced using Fairchild's proprietary, high cell density, DMOS technology. This very high density process is especially tailored to minimize on-state resistance. This device has been designed especially for low voltage applications as a replacement for bipolar digital transistors and small signal MOSFETs.

Features

- -25 V, -0.14 A continuous, -0.4 A peak.
 $R_{DS(ON)} = 10\ \Omega @ V_{GS} = -4.5\ V$,
 $R_{DS(ON)} = 13\ \Omega @ V_{GS} = -2.7\ V$.
- Very low level gate drive requirements allowing direct operation in 3 V circuits ($V_{GS(th)} < 1.5\ V$).
- Gate-Source Zener for ESD ruggedness (>6kV Human Body Model).
- Compact industry standard SC70-6 surface mount package.



* The pinouts are symmetrical; pin 1 and 4 are interchangeable.

Units inside the carrier can be of either orientation and will not affect the functionality of the device.

Absolute Maximum Ratings $T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	FDG6302P	Units
V_{DSS}	Drain-Source Voltage	-25	V
V_{GSS}	Gate-Source Voltage	-8	V
I_D	Drain/Output Current - Continuous	-0.14	A
	- Pulsed	-0.4	
P_D	Maximum Power Dissipation (Note 1)	0.3	W
T_J, T_{STG}	Operating and Storage Temperature Range	-55 to 150	$^\circ\text{C}$
ESD	Electrostatic Discharge Rating MIL-STD-883D Human Body Model (100 pF / 1500 Ω)	6.0	kV

THERMAL CHARACTERISTICS

Symbol	Parameter	FDG6302P	Units
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient (Note 1)	415	$^\circ\text{C/W}$

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

Symbol	Parameter	Conditions	Min	Typ	Max	Units
OFF CHARACTERISTICS						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0 V, I _D = -250 μA	-25			V
ΔBV _{DSS} /ΔT _J	Breakdown Voltage Temp. Coefficient	I _D = -250 μA, Referenced to 25°C		-19		mV / °C
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = -20 V, V _{GS} = 0 V			-1	μA
		T _J = 55°C			-10	μA
I _{GSS}	Gate - Body Leakage Current	V _{GS} = -8 V, V _{DS} = 0 V			-100	nA
ON CHARACTERISTICS (Note 2)						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = -250 μA	-0.65	-0.9	-1.5	V
ΔV _{GS(th)} /ΔT _J	Gate Threshold Voltage Temp.Coefficient	I _D = -250 μA, Referenced to 25°C		2		mV / °C
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} = -4.5 V, I _D = -0.14 A		7.3	10	Ω
		T _J =125°C		11	17	
		V _{GS} = -2.7 V, I _D = -0.05 A		10.4	13	
I _{D(ON)}	On-State Drain Current	V _{GS} = -4.5 V, V _{DS} = -5 V	-0.14			A
g _{FS}	Forward Transconductance	V _{DS} = -5 V, I _D = -0.14 A		0.12		S
DYNAMIC CHARACTERISTICS						
C _{iss}	Input Capacitance	V _{DS} = -10 V, V _{GS} = 0 V, f = 1.0 MHz		12		pF
C _{oss}	Output Capacitance			7		pF
C _{rss}	Reverse Transfer Capacitance			1.5		pF
SWITCHING CHARACTERISTICS (Note 2)						
t _{D(on)}	Turn - On Delay Time	V _{DD} = -5 V, I _D = -0.25 A, V _{GS} = -4.5 V, R _{GEN} = 6 Ω		5	12	ns
t _r	Turn - On Rise Time			8	16	ns
t _{D(off)}	Turn - Off Delay Time			9	18	ns
t _f	Turn - Off Fall Time			5	10	ns
Q _g	Total Gate Charge	V _{DS} = -5 V, I _D = -0.14 A, V _{GS} = -4.5 V		0.22	0.31	nC
Q _{gs}	Gate-Source Charge			0.12		nC
Q _{gd}	Gate-Drain Charge			0.05		nC
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
I _S	Maximum Continuous Source Current				-0.25	A
V _{SD}	Drain-Source Diode Forward Voltage	V _{GS} = 0 V, I _S = -0.25 A (Note 2)		-0.8	-1.2	V

Notes:

- $R_{\theta JA}$ 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. $R_{\theta JA}$ is guaranteed by design while $R_{\theta JC}$ is determined by the user's board design. $R_{\theta JA} = 415^\circ\text{C/W}$ on minimum pad mounting on FR-4 board in still air.
- Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2.0\%$.

Typical Electrical Characteristics

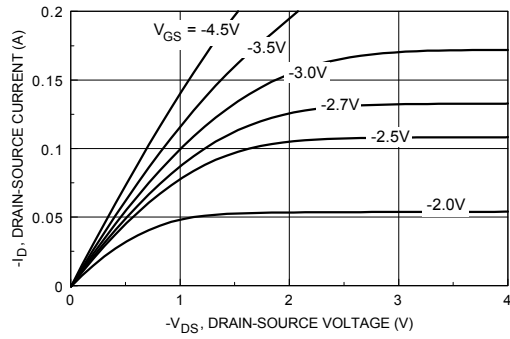


Figure 1. On-Region Characteristics.

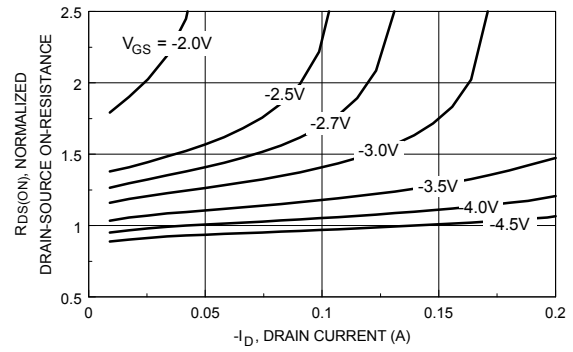


Figure 2. On-Resistance Variation with Drain Current and Gate Voltage.

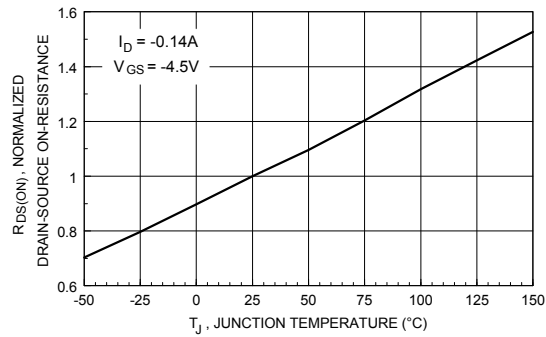


Figure 3. On-Resistance Variation with Temperature.

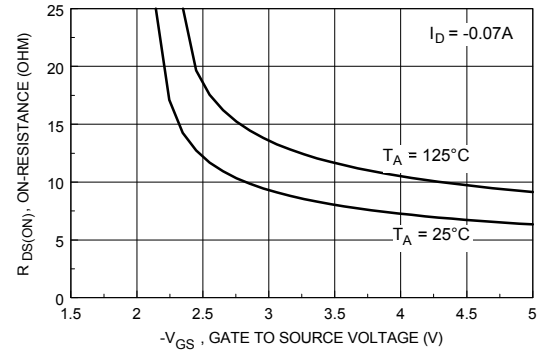


Figure 4. On-Resistance Variation with Gate-to-Source Voltage.

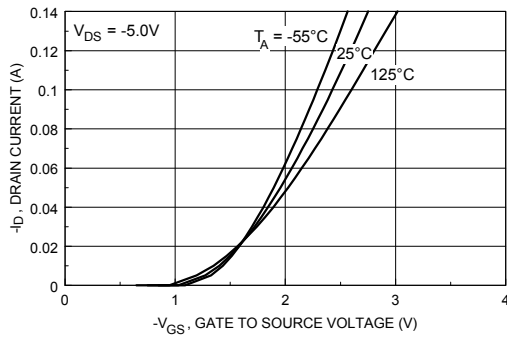


Figure 5. Transfer Characteristics.

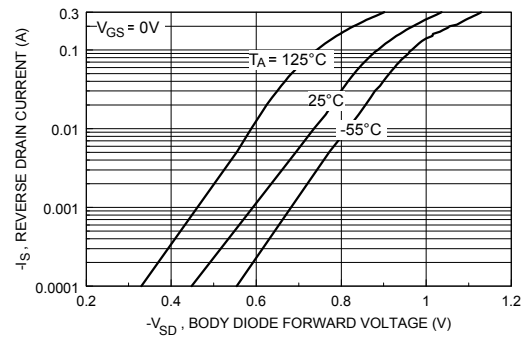


Figure 6. Body Diode Forward Voltage Variation with Source Current and Temperature.

Typical Electrical Characteristics

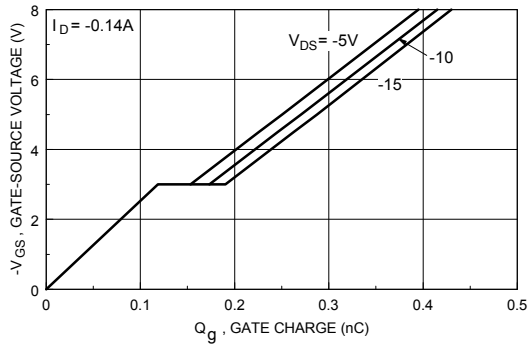


Figure 7. Gate Charge Characteristics.

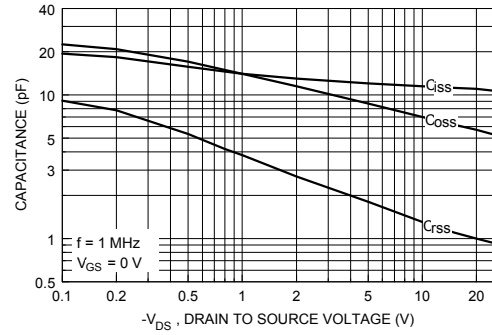


Figure 8. Capacitance Characteristics.

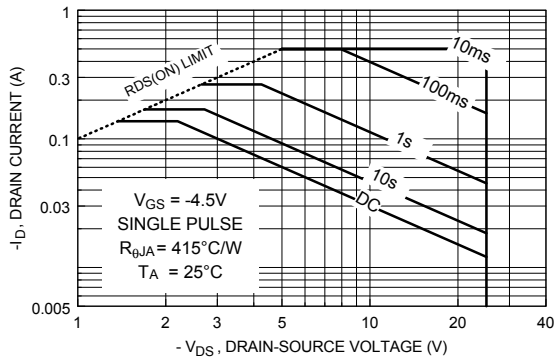


Figure 9. Maximum Safe Operating Area.

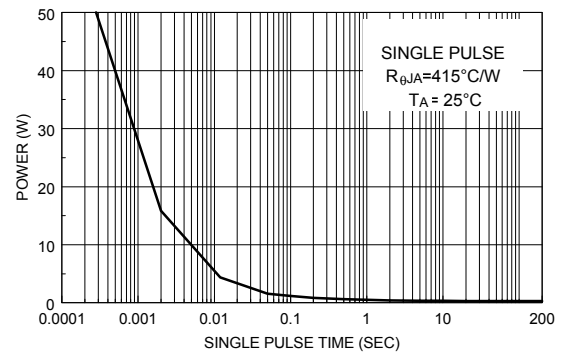


Figure 10. Single Pulse Maximum Power Dissipation.

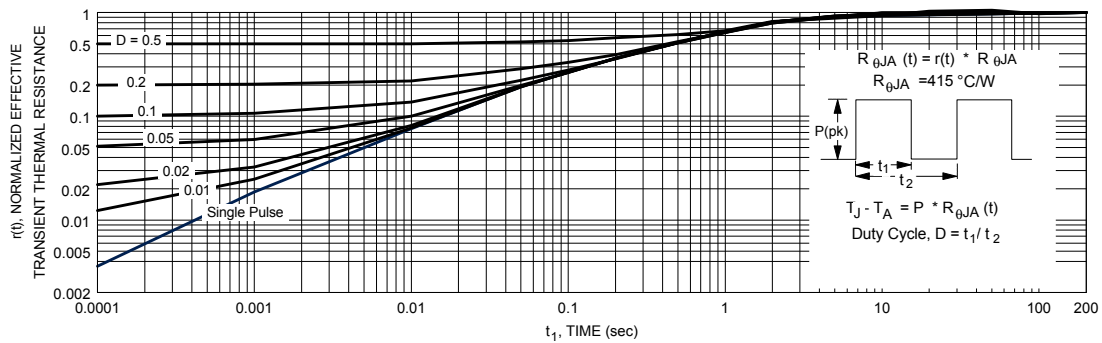


Figure 11. Transient Thermal Response Curve.

Thermal characterization performed using the conditions described in note 1.
Transient thermal response will change depending on the circuit board design.

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.

ACE[™]
Bottomless[™]
CoolFET[™]
CROSSVOLT[™]
E²CMOS[™]
FACT[™]
FACT Quiet Series[™]
FAST[®]
FAST^r[™]
GTO[™]

HiSeC[™]
ISOPLANAR[™]
MICROWIRE[™]
POP[™]
PowerTrench[®]
QFET[™]
QS[™]
Quiet Series[™]
SuperSOT[™]-3
SuperSOT[™]-6

SuperSOT[™]-8
SyncFET[™]
TinyLogic[™]
UHC[™]
VCX[™]

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.

PRODUCT STATUS DEFINITIONS

Definition of Terms

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



О компании

ООО "ТрейдЭлектроникс" - это оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов. Реализуемая нашей компанией продукция насчитывает более полумиллиона наименований.

Благодаря этому наша компания предлагает к поставке практически не ограниченный ассортимент компонентов как оптовыми, мелкооптовыми партиями, так и в розницу.

Наличие собственной эффективной системы логистики обеспечивает надежную поставку продукции по конкурентным ценам в точно указанные сроки.

Срок поставки со стоков в **Европе и Америке – от 3 до 14 дней.**

Срок поставки из **Азии – от 10 дней.**

Благодаря развитой сети поставщиков, помогаем в поиске и приобретении экзотичных или снятых с производства компонентов.

Предоставляем спец цены на элементы для создания инженерных сэмплов.

Упорный труд, качественный результат дают нам право быть уверенными в себе и надежными для наших клиентов.

Наша компания это:

- Гарантия качества поставляемой продукции
- Широкий ассортимент
- Минимальные сроки поставок
- Техническая поддержка
- Подбор комплектации
- Индивидуальный подход
- Гибкое ценообразование

Наша организация особенно сильна в поставках модулей, микросхем, пассивных компонентов, ксайленсах (XC), EPF, EPM и силовой электроники.

Большой выбор предлагаемой продукции, различные виды оплаты и доставки, позволят Вам сэкономить время и получить максимум выгоды от сотрудничества с нами!

Перечень производителей, продукцию которых мы поставляем на российский рынок





Trade Electronics.ru

гарантия бесперебойности производства и
качества выпускаемой продукции

С удовольствием будем прорабатывать для Вас поставки всех необходимых компонентов по текущим запросам для скорейшего выявления групп элементов, по которым сотрудничество именно с нашей компанией будет для Вас максимально выгодным!

С уважением,

Менеджер отдела продаж ООО

«Трейд Электроникс»

Шишлаков Евгений

8 (495)668-30-28 доб 169

manager28@tradeelectronics.ru

<http://www.tradeelectronics.ru/>