



Is Now Part of

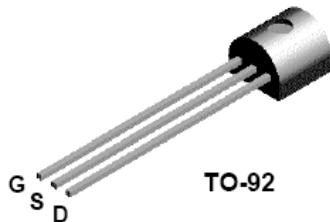


ON Semiconductor®

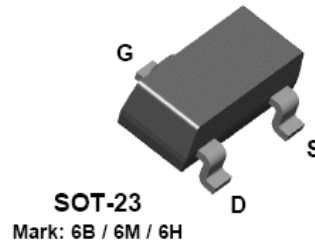
To learn more about ON Semiconductor, please visit our website at
www.onsemi.com

ON Semiconductor and the ON Semiconductor logo are trademarks of Semiconductor Components Industries, LLC dba ON Semiconductor or its subsidiaries in the United States and/or other countries. ON Semiconductor owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of ON Semiconductor's product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent-Marking.pdf. ON Semiconductor reserves the right to make changes without further notice to any products herein. ON Semiconductor makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does ON Semiconductor 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. Buyer is responsible for its products and applications using ON Semiconductor products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by ON Semiconductor. "Typical" parameters which may be provided in ON Semiconductor 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. ON Semiconductor does not convey any license under its patent rights nor the rights of others. ON Semiconductor products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA Class 3 medical devices or medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase or use ON Semiconductor products for any such unintended or unauthorized application, Buyer shall indemnify and hold ON Semiconductor and its officers, employees, subsidiaries, affiliates, 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 ON Semiconductor was negligent regarding the design or manufacture of the part. ON Semiconductor is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

2N5484/5485/5486 MMBF5484/5485/5486



TO-92



SOT-23

Mark: 6B / 6M / 6H

NOTE: Source & Drain are interchangeable

N-Channel RF Amplifier

This device is designed primarily for electronic switching applications such as low On Resistance analog switching. Sourced from Process 50.

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

Symbol	Parameter	Value	Units
V_{DG}	Drain-Gate Voltage	25	V
V_{GS}	Gate-Source Voltage	- 25	V
I_{GF}	Forward Gate Current	10	mA
T_J, T_{stg}	Operating and Storage Junction Temperature Range	-55 to +150	°C

*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

NOTES:

- 1) These ratings are based on a maximum junction temperature of 150 degrees C.
- 2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Thermal Characteristics TA = 25°C unless otherwise noted

Symbol	Characteristic	Max		Units
		2N5484-5486	*MMBF5484-5486	
P_D	Total Device Dissipation	350	225	mW
	Derate above 25°C	2.8	1.8	mW/°C
$R_{\theta JC}$	Thermal Resistance, Junction to Case	125		°C/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	357	556	°C/W

* Device mounted on FR-4 PCB 1.6" X 1.6" X 0.06."

N-Channel RF Amplifier

(continued)

Electrical Characteristics

TA = 25°C unless otherwise noted

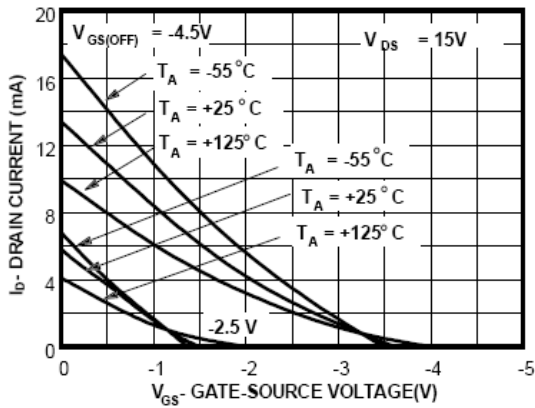
Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
OFF CHARACTERISTICS						
V _{(BR)GSS}	Gate-Source Breakdown Voltage	I _G = -1.0 μA, V _{DS} = 0	-25			V
I _{GSS}	Gate Reverse Current	V _{GS} = -20 V, V _{DS} = 0 V _{GS} = -20 V, V _{DS} = 0, T _A = 100°C			-1.0 -0.2	nA μA
V _{GS(off)}	Gate-Source Cutoff Voltage	V _{DS} = 15 V, I _D = 10 nA	5484 5485 5486	-0.3 -0.5 -2.0	-3.0 -4.0 -6.0	V V V
ON CHARACTERISTICS						
I _{DSS}	Zero-Gate Voltage Drain Current*	V _{DS} = 15 V, V _{GS} = 0	5484 5485 5486	1.0 4.0 8.0	5.0 10 20	mA mA mA
SMALL SIGNAL CHARACTERISTICS						
g _{fs}	Forward Transfer Conductance	V _{DS} = 15 V, V _{GS} = 0, f = 1.0 kHz	5484 5485 5486	3000 3500 4000	6000 7000 8000	μmhos μmhos μmhos
Re(y _{is})	Input Conductance	V _{DS} = 15 V, V _{GS} = 0, f = 100 MHz V _{DS} = 15 V, V _{GS} = 0, f = 400 MHz	5484 5485 / 5486		100 1000	μmhos μmhos
g _{os}	Output Conductance	V _{DS} = 15 V, V _{GS} = 0, f = 1.0 kHz	5484 5485 5486		50 60 75	μmhos μmhos μmhos
Re(y _{os})	Output Conductance	V _{DS} = 15 V, V _{GS} = 0, f = 100 MHz V _{DS} = 15 V, V _{GS} = 0, f = 400 MHz	5484 5485 / 5486		75 100	μmhos μmhos
Re(y _{fs})	Forward Transconductance	V _{DS} = 15 V, V _{GS} = 0, f = 100 MHz V _{DS} = 15 V, V _{GS} = 0, f = 400 MHz	5484 5485 5486	2500 3000 3500		μmhos μmhos μmhos
C _{iss}	Input Capacitance	V _{DS} = 15 V, V _{GS} = 0, f = 1.0 MHz			5.0	pF
C _{rss}	Reverse Transfer Capacitance	V _{DS} = 15 V, V _{GS} = 0, f = 1.0 MHz			1.0	pF
C _{oss}	Output Capacitance	V _{DS} = 15 V, V _{GS} = 0, f = 1.0 MHz			2.0	pF
NF	Noise Figure	V _{DS} = 15 V, R _G = 1.0 kΩ, f = 100 MHz V _{DS} = 15 V, R _G = 1.0 kΩ, f = 400 MHz V _{DS} = 15 V, R _G = 1.0 kΩ, f = 100 MHz V _{DS} = 15 V, R _G = 1.0 kΩ, f = 400 MHz	5484 5484 5485 / 5486 5485 / 5486		3.0 4.0 2.0 4.0	dB dB dB dB

N-Channel RF Amplifier

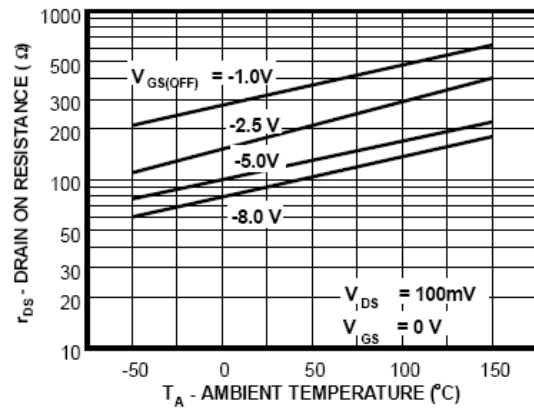
(continued)

Typical Characteristics

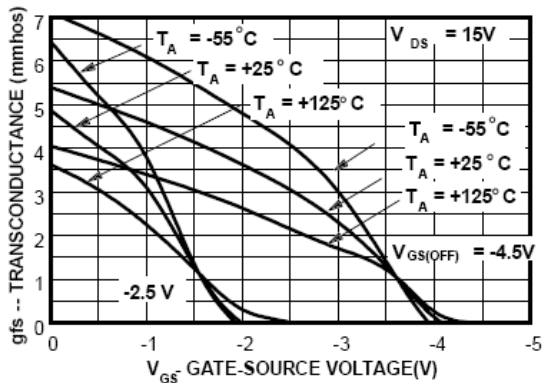
Transfer Characteristics



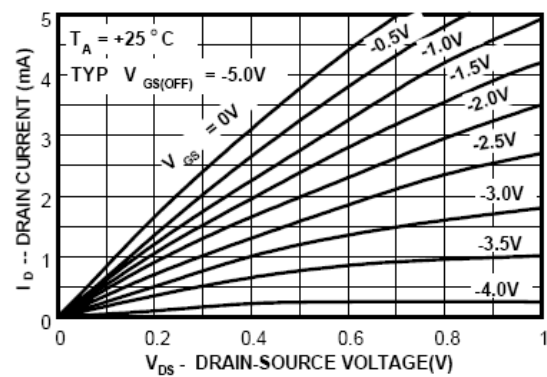
Channel Resistance vs Temperature



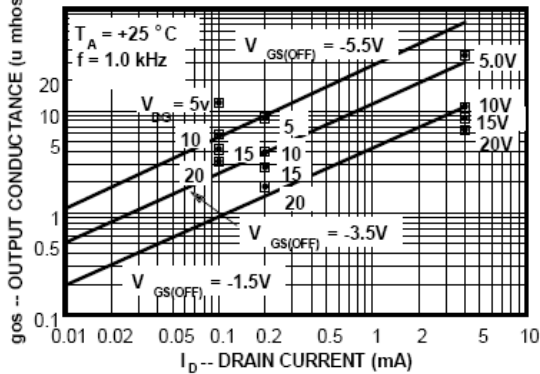
Transconductance Characteristics



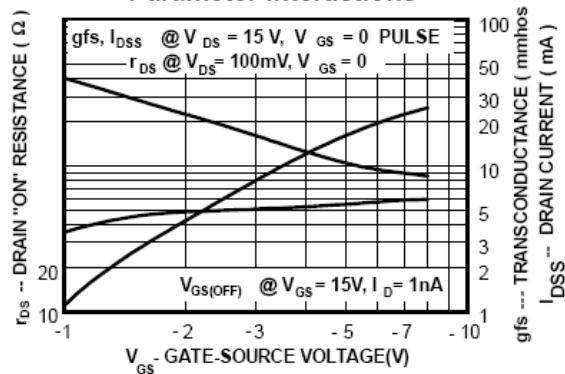
Common Drain-Source Characteristics



Output Conductance vs Drain Current

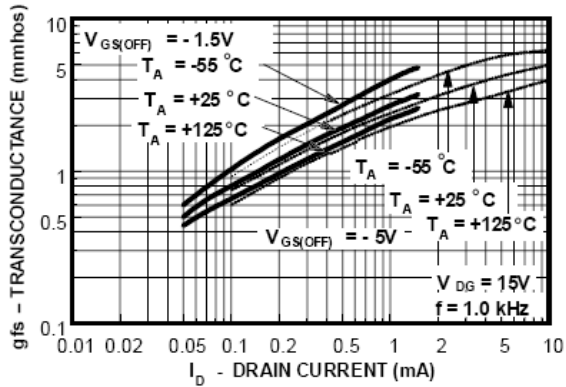


Transconductance Parameter Interactions

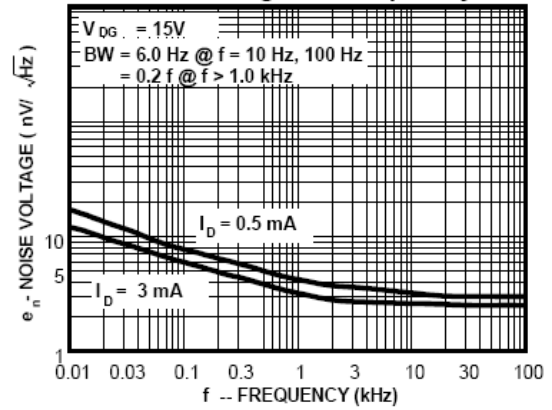


Typical Characteristics (continued)

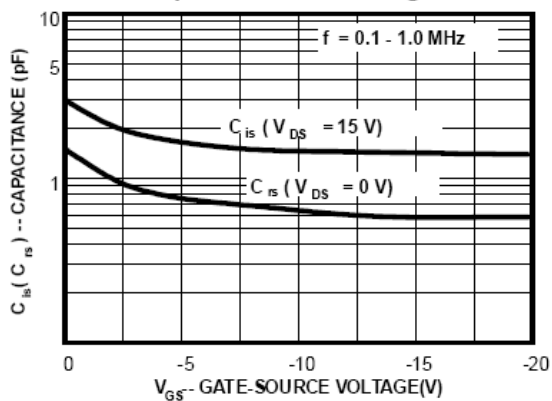
Transconductance vs Drain Current



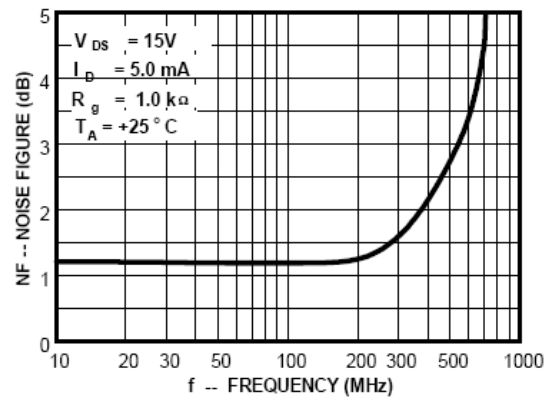
Noise Voltage vs Frequency



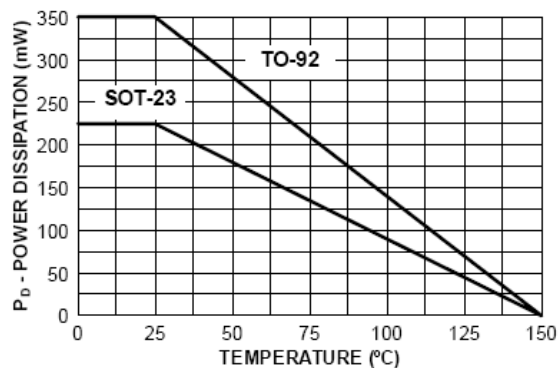
Capacitance vs Voltage



Noise Figure Frequency



Power Dissipation vs. Ambient Temperature

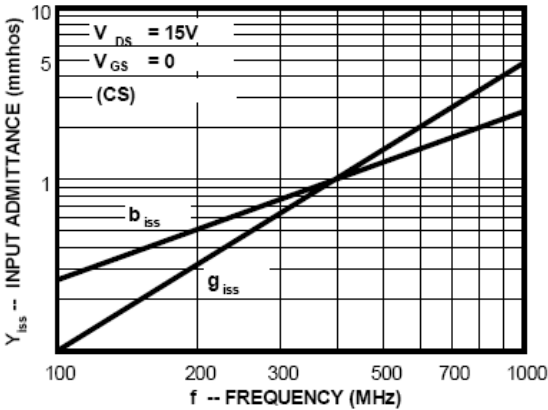


N-Channel RF Amplifier

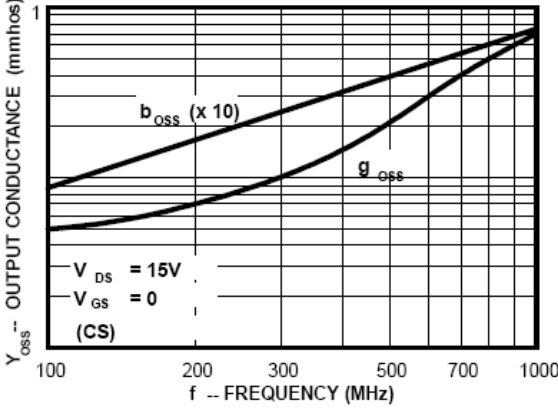
(continued)

Common Source Characteristics

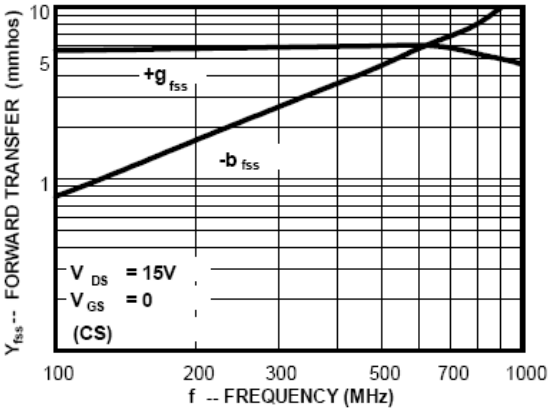
Input Admittance



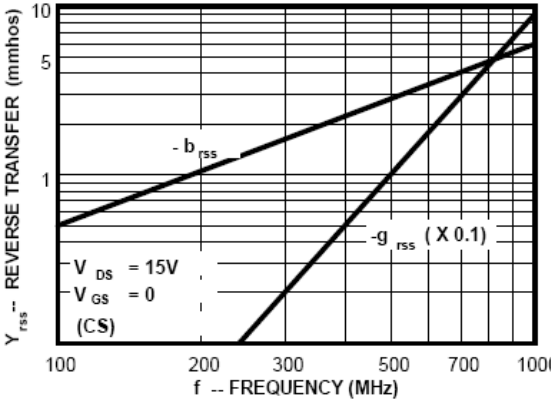
Output Admittance



Forward Transadmittance



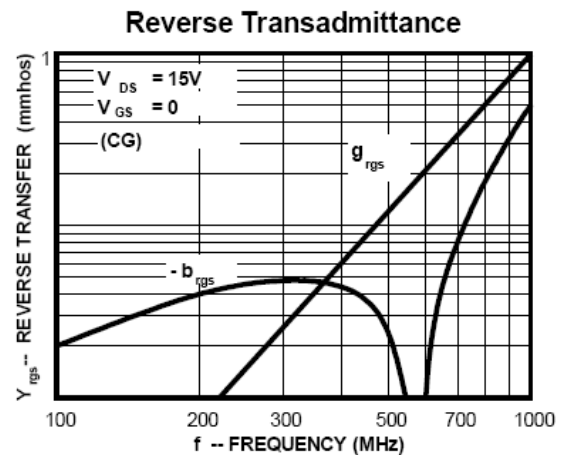
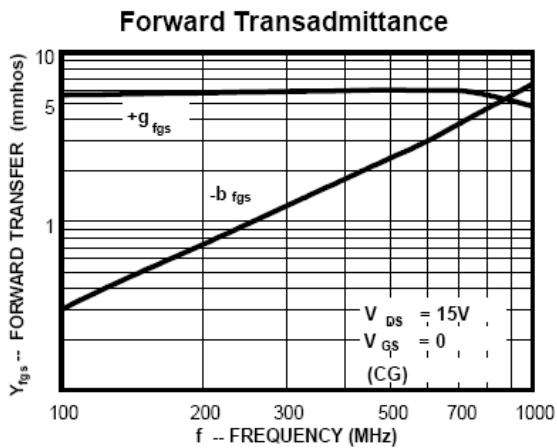
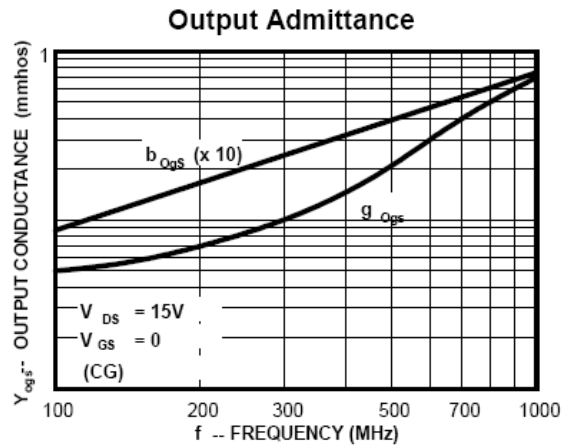
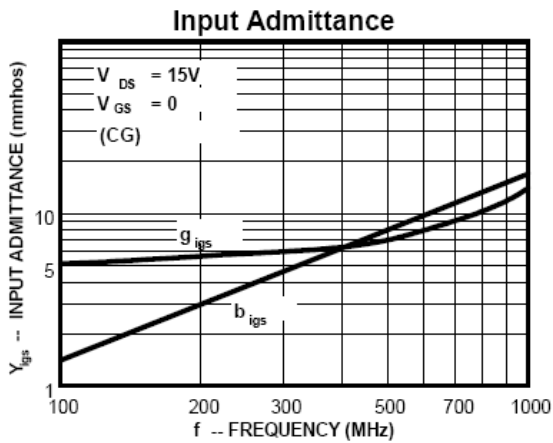
Reverse Transadmittance



N-Channel RF Amplifier

(continued)



Common Gate Characteristics





TRADEMARKS

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

- | | | | |
|--|---|----------------------------|---|
| ACEx® | Green FPS™ | Power247® | SuperSOT™-8 |
| Build it Now™ | Green FPS™ e-Series™ | POWEREDGE® | SyncFET™ |
| CorePLUS™ | GTO™ | Power-SPM™ | The Power Franchise® |
| CROSSVOLT™ | i-Lo™ | PowerTrench® |  |
| CTL™ | IntelliMAX™ | Programmable Active Droop™ | TinyBoost™ |
| Current Transfer Logic™ | ISOPLANAR™ | QFET® | TinyBuck™ |
| EcoSPARK® | MegaBuck™ | QS™ | TinyLogic® |
|  Fairchild® | MICROCOUPLER™ | QT Optoelectronics™ | TINYOPTO™ |
| Fairchild Semiconductor® | MicroFET™ | Quiet Series™ | TinyPower™ |
| FACT Quiet Series™ | MicroPak™ | RapidConfigure™ | TinyPWM™ |
| FACT® | MillerDrive™ | SMART START™ | TinyWire™ |
| FAST® | Motion-SPM™ | SPM® | µSerDes™ |
| FastvCore™ | OPTOLOGIC® | STEALTH™ | UHC® |
| FPST™ | OPTOPLANAR® | SuperFET™ | UniFET™ |
| FRFET® |  ® | SuperSOT™-3 | VCX™ |
| Global Power ResourceSM | PDP-SPM™ | SuperSOT™-6 | |
| | Power220® | | |

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. THESE SPECIFICATIONS DO NOT EXPAND THE TERMS OF FAIRCHILD'S WORLDWIDE TERMS AND CONDITIONS, SPECIFICALLY THE WARRANTY THEREIN, WHICH COVERS THESE PRODUCTS.

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:

- 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, and (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.
- 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; supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice 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 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.

ON Semiconductor and  are trademarks of Semiconductor Components Industries, LLC dba ON Semiconductor or its subsidiaries in the United States and/or other countries. ON Semiconductor owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of ON Semiconductor's product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent-Marking.pdf. ON Semiconductor reserves the right to make changes without further notice to any products herein. ON Semiconductor makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does ON Semiconductor 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. Buyer is responsible for its products and applications using ON Semiconductor products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by ON Semiconductor. "Typical" parameters which may be provided in ON Semiconductor 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. ON Semiconductor does not convey any license under its patent rights nor the rights of others. ON Semiconductor products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA Class 3 medical devices or medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase or use ON Semiconductor products for any such unintended or unauthorized application, Buyer shall indemnify and hold ON Semiconductor and its officers, employees, subsidiaries, affiliates, 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 ON Semiconductor was negligent regarding the design or manufacture of the part. ON Semiconductor is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:

Literature Distribution Center for ON Semiconductor
19521 E. 32nd Pkwy, Aurora, Colorado 80011 USA
Phone: 303-675-2175 or 800-344-3860 Toll Free USA/Canada
Fax: 303-675-2176 or 800-344-3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

N. American Technical Support: 800-282-9855 Toll Free
USA/Canada
Europe, Middle East and Africa Technical Support:
Phone: 421 33 790 2910
Japan Customer Focus Center
Phone: 81-3-5817-1050

ON Semiconductor Website: www.onsemi.com
Order Literature: <http://www.onsemi.com/orderlit>
For additional information, please contact your local
Sales Representative