

HN1B01FDW1T1G, SHN1B01FDW1T1G

Complementary Dual General Purpose Amplifier Transistor

PNP and NPN Surface Mount

Features

- High Voltage and High Current: $V_{CEO} = 50\text{ V}$, $I_C = 200\text{ mA}$
- High h_{FE} : $h_{FE} = 200 \sim 400$
- Moisture Sensitivity Level: 1
- ESD Rating
 - ♦ Human Body Model: 3A
 - ♦ Machine Model: C
- AEC-Q101 Qualified and PPAP Capable
- S Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant*

MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$)

Rating	Symbol	Value	Unit
Collector-Base Voltage	$V_{(BR)CBO}$	60	Vdc
Collector-Emitter Voltage	$V_{(BR)CEO}$	50	Vdc
Emitter-Base Voltage	$V_{(BR)EBO}$	7.0	Vdc
Collector Current - Continuous	I_C	200	mA _{dc}

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Power Dissipation	P_D	380	mW
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

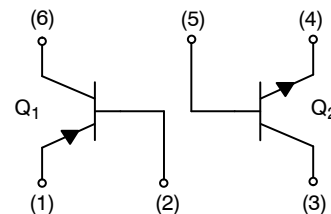


ON Semiconductor®

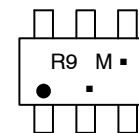
<http://onsemi.com>



SC-74
CASE 318F
STYLE 3



MARKING DIAGRAM



R9 = Specific Device Code
M = Date Code
■ = Pb-Free Package

ORDERING INFORMATION

Device	Package	Shipping†
HN1B01FDW1T1G	SC-74 (Pb-Free)	3,000/Tape & Reel
SHN1B01FDW1T1G	SC-74 (Pb-Free)	3,000/Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

HN1B01FDW1T1G, SHN1B01FDW1T1G

Q1: PNP

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

Characteristic	Symbol	Min	Max	Unit
Collector–Emitter Breakdown Voltage ($I_C = 2.0\text{ mAdc}$, $I_B = 0$)	$V_{(BR)CEO}$	-50	-	Vdc
Collector–Base Breakdown Voltage ($I_C = 10\ \mu\text{Adc}$, $I_E = 0$)	$V_{(BR)CBO}$	-60	-	Vdc
Emitter–Base Breakdown Voltage ($I_E = 10\ \mu\text{Adc}$, $I_C = 0$)	$V_{(BR)EBO}$	-7.0	-	Vdc
Collector–Base Cutoff Current ($V_{CB} = 45\text{ Vdc}$, $I_E = 0$)	I_{CBO}	-	-0.1	μAdc
Collector–Emitter Cutoff Current ($V_{CE} = 10\text{ Vdc}$, $I_B = 0$) ($V_{CE} = 30\text{ Vdc}$, $I_B = 0$) ($V_{CE} = 30\text{ Vdc}$, $I_B = 0$, $T_A = 80^\circ\text{C}$)	I_{CEO}	-	-0.1 -2.0 -1.0	μAdc μAdc mAdc
DC Current Gain (Note 1) ($V_{CE} = 6.0\text{ Vdc}$, $I_C = 2.0\text{ mAdc}$)	h_{FE}	-200	-400	-
Collector–Emitter Saturation Voltage ($I_C = 100\text{ mAdc}$, $I_B = 10\text{ mAdc}$)	$V_{CE(sat)}$	-0.15	-0.3	Vdc

Q2: NPN

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

Characteristic	Symbol	Min	Max	Unit
Collector–Emitter Breakdown Voltage ($I_C = 2.0\text{ mAdc}$, $I_B = 0$)	$V_{(BR)CEO}$	50	-	Vdc
Collector–Base Breakdown Voltage ($I_C = 10\ \mu\text{Adc}$, $I_E = 0$)	$V_{(BR)CBO}$	60	-	Vdc
Emitter–Base Breakdown Voltage ($I_E = 10\ \mu\text{Adc}$, $I_C = 0$)	$V_{(BR)EBO}$	7.0	-	Vdc
Collector–Base Cutoff Current ($V_{CB} = 45\text{ Vdc}$, $I_E = 0$)	I_{CBO}	-	0.1	μAdc
Collector–Emitter Cutoff Current ($V_{CE} = 10\text{ Vdc}$, $I_B = 0$) ($V_{CE} = 30\text{ Vdc}$, $I_B = 0$) ($V_{CE} = 30\text{ Vdc}$, $I_B = 0$, $T_A = 80^\circ\text{C}$)	I_{CEO}	-	0.1 2.0 1.0	μAdc μAdc mAdc
DC Current Gain (Note 1) ($V_{CE} = 6.0\text{ Vdc}$, $I_C = 2.0\text{ mAdc}$)	h_{FE}	200	400	-
Collector–Emitter Saturation Voltage ($I_C = 100\text{ mAdc}$, $I_B = 10\text{ mAdc}$)	$V_{CE(sat)}$	0.15	0.25	Vdc

1. Pulse Test: Pulse Width $\leq 300\ \mu\text{s}$, D.C. $\leq 2\%$.

HN1B01FDW1T1G, SHN1B01FDW1T1G

TYPICAL ELECTRICAL CHARACTERISTICS: PNP Transistor

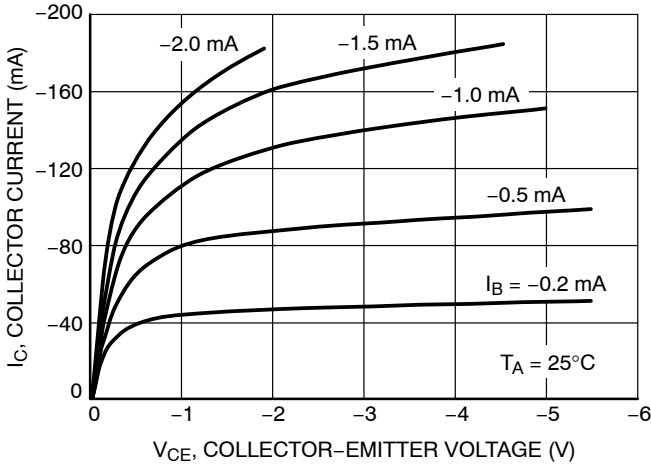


Figure 1. Collector Saturation Region

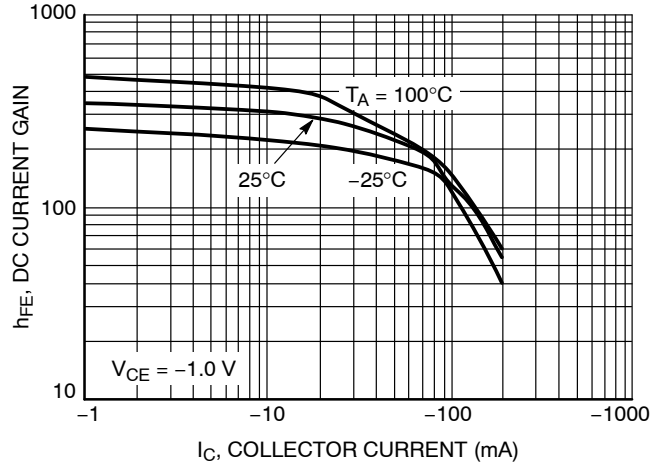


Figure 2. DC Current Gain

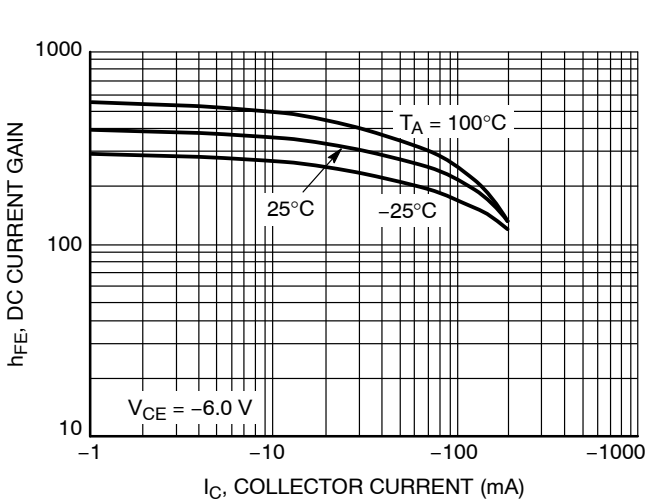


Figure 3. DC Current Gain

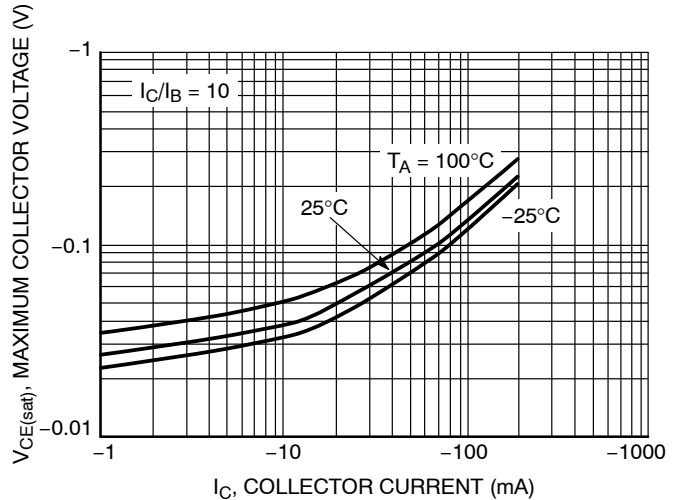


Figure 4. $V_{CE(sat)}$ versus I_C

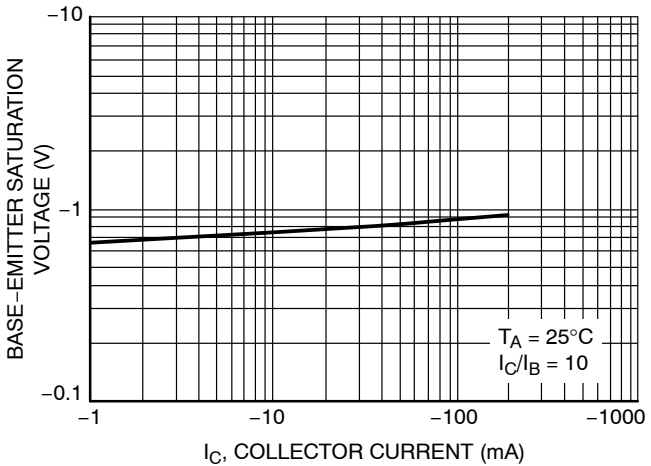


Figure 5. $V_{BE(sat)}$ versus I_C

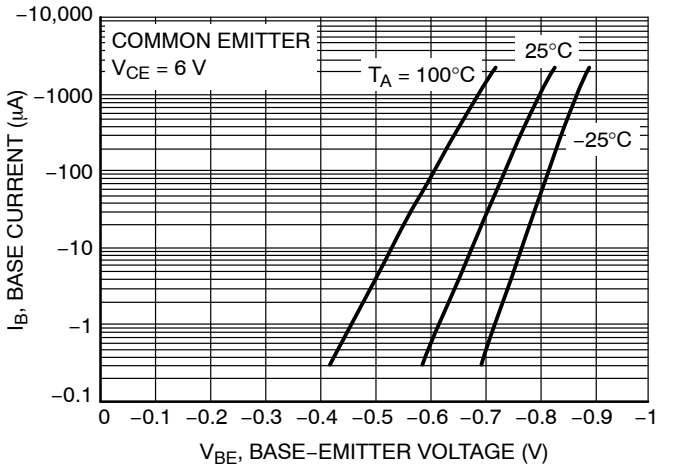


Figure 6. Base-Emitter Voltage

HN1B01FDW1T1G, SHN1B01FDW1T1G

TYPICAL ELECTRICAL CHARACTERISTICS: NPN Transistor

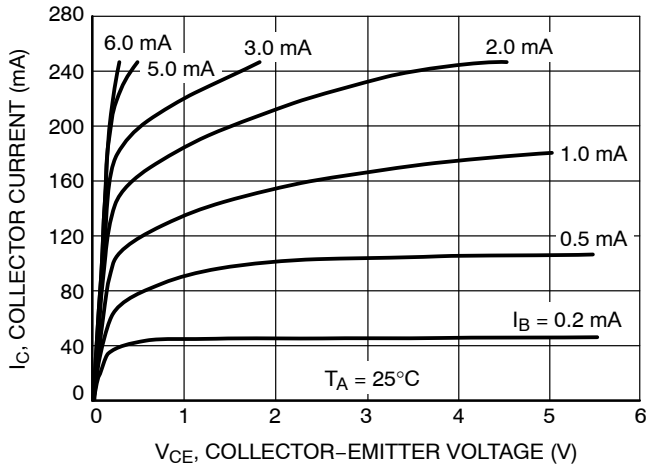


Figure 7. Collector Saturation Voltage

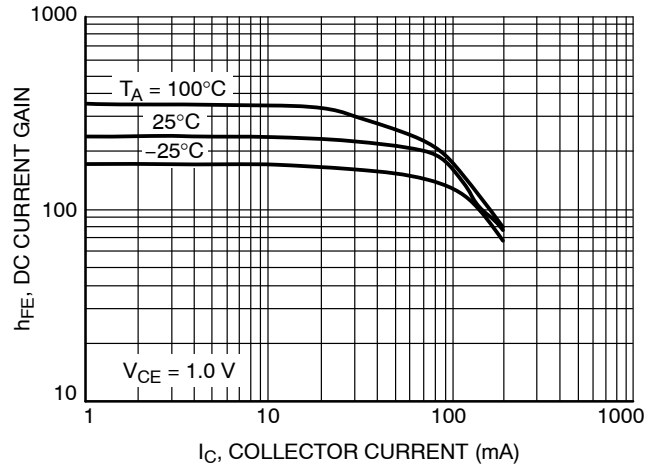


Figure 8. DC Current Gain

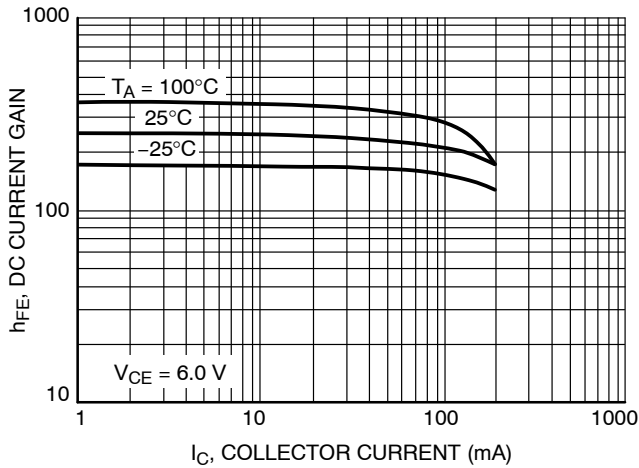


Figure 9. DC Current Gain

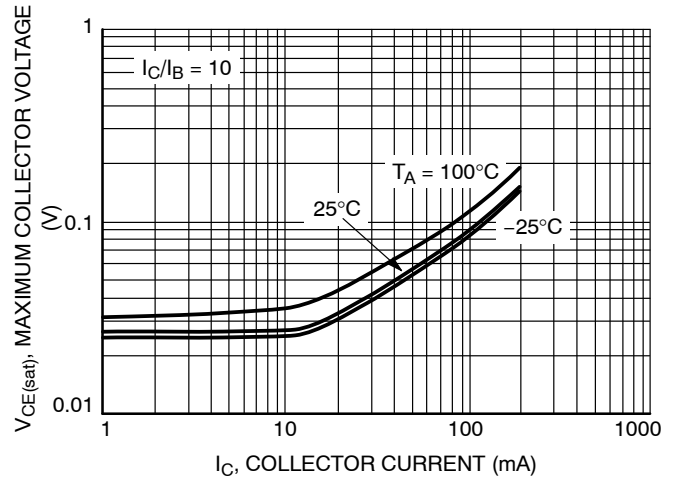


Figure 10. $V_{CE(sat)}$ versus I_C

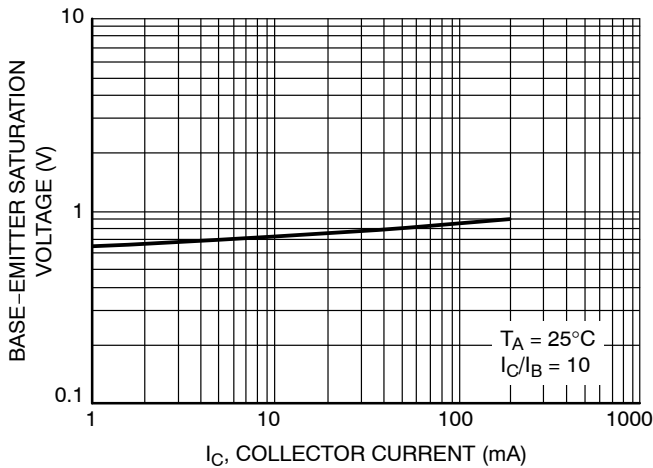


Figure 11. $V_{BE(sat)}$ versus I_C

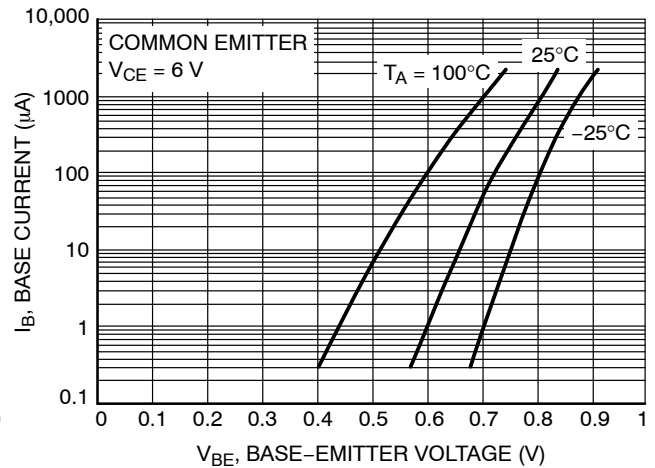


Figure 12. Base-Emitter Voltage

HN1B01FDW1T1G, SHN1B01FDW1T1G

TYPICAL ELECTRICAL CHARACTERISTICS

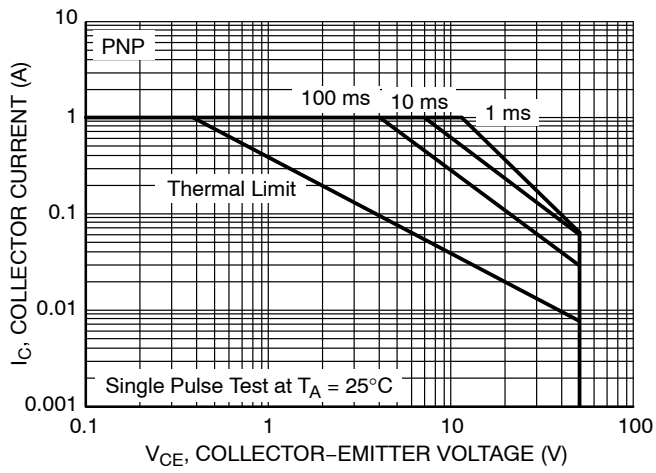


Figure 13. PNP Safe Operating Area

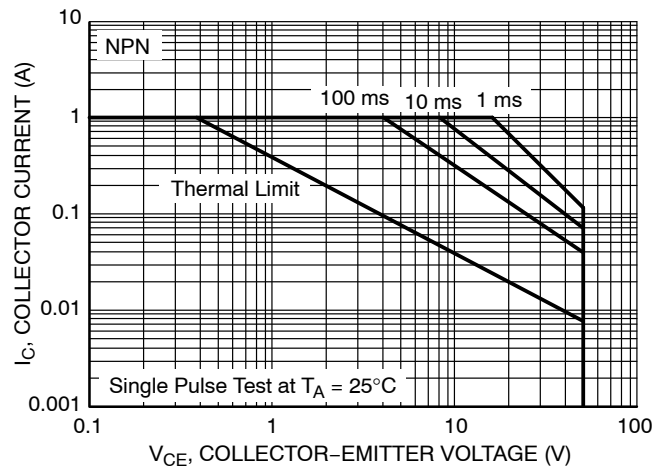
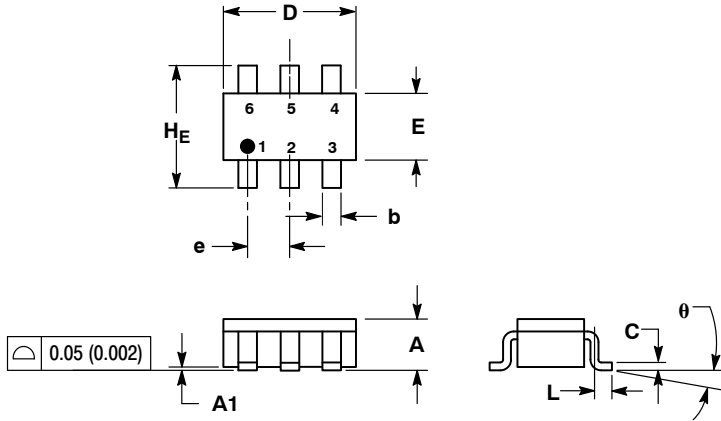


Figure 14. NPN Safe Operating Area

HN1B01FDW1T1G, SHN1B01FDW1T1G

PACKAGE DIMENSIONS

SC-74
CASE 318F-05
ISSUE M



NOTES:

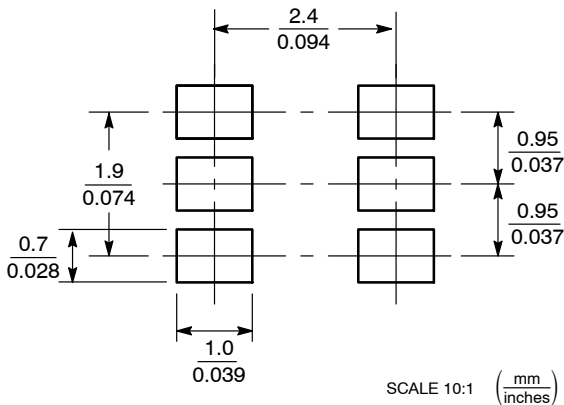
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. 318F-01, -02, -03, -04 OBSOLETE. NEW STANDARD 318F-05.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.90	1.00	1.10	0.035	0.039	0.043
A1	0.01	0.06	0.10	0.001	0.002	0.004
b	0.25	0.37	0.50	0.010	0.015	0.020
c	0.10	0.18	0.26	0.004	0.007	0.010
D	2.90	3.00	3.10	0.114	0.118	0.122
E	1.30	1.50	1.70	0.051	0.059	0.067
e	0.85	0.95	1.05	0.034	0.037	0.041
L	0.20	0.40	0.60	0.008	0.016	0.024
HE	2.50	2.75	3.00	0.099	0.108	0.118
θ	0°	-	10°	0°	-	10°

STYLE 3:

1. EMITTER 1
2. BASE 1
3. COLLECTOR 2
4. EMITTER 2
5. BASE 2
6. COLLECTOR 1

SOLDERING FOOTPRINT*



SCALE 10:1 (mm/inches)

*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

ON Semiconductor and are registered trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC 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. "Typical" parameters which may be provided in SCILLC 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. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC 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 SCILLC was negligent regarding the design or manufacture of the part. SCILLC 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
P.O. Box 5163, Denver, Colorado 80217 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



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)

Факс: 8 (812) 320-02-42

Электронная почта: org@eplast1.ru

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.