

TIP41, TIP41A, TIP41B, TIP41C (NPN); TIP42, TIP42A, TIP42B, TIP42C (PNP)

Complementary Silicon Plastic Power Transistors

Designed for use in general purpose amplifier and switching applications.

Features

- ESD Ratings: Machine Model, C; > 400 V
Human Body Model, 3B; > 8000 V
- Epoxy Meets UL 94 V-0 @ 0.125 in
- Pb-Free Packages are Available*

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage TIP41, TIP42 TIP41A, TIP42A TIP41B, TIP42B TIP41C, TIP42C	V_{CEO}	40 60 80 100	Vdc
Collector-Base Voltage TIP41, TIP42 TIP41A, TIP42A TIP41B, TIP42B TIP41C, TIP42C	V_{CB}	40 60 80 100	Vdc
Emitter-Base Voltage	V_{EB}	5.0	Vdc
Collector Current— Continuous Peak	I_C	6.0 10	Adc
Base Current	I_B	2.0	Adc
Total Power Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	65 0.52	W W/ $^\circ\text{C}$
Total Power Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	2.0 0.016	W W/ $^\circ\text{C}$
Unclamped Inductive Load Energy (Note 1)	E	62.5	mJ
Operating and Storage Junction, Temperature Range	T_J, T_{stg}	-65 to +150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	1.67	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	57	$^\circ\text{C}/\text{W}$

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.

1. $I_C = 2.5\text{ A}$, $L = 20\text{ mH}$, P.R.F. = 10 Hz, $V_{CC} = 10\text{ V}$, $R_{BE} = 100\ \Omega$.

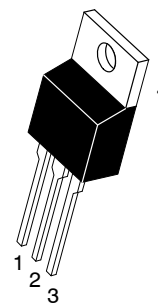
*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.



ON Semiconductor®

<http://onsemi.com>

6 AMPERE COMPLEMENTARY SILICON POWER TRANSISTORS 40-60-80-100 VOLTS, 65 WATTS



TO-220AB
CASE 221A
STYLE 1

STYLE 1:
PIN 1: BASE
2: COLLECTOR
3: EMITTER
4: COLLECTOR

MARKING DIAGRAM



TIP4xx = Device Code
xx = 1, 1A, 1B, 1C
2, 2A, 2B, 2C
A = Assembly Location
Y = Year
WW = Work Week
G = Pb-Free Package

ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 2 of this data sheet.

TIP41, TIP41A, TIP41B, TIP41C (NPN); TIP42, TIP42A, TIP42B, TIP42C (PNP)

ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit	
OFF CHARACTERISTICS					
Collector–Emitter Sustaining Voltage (Note 2) (I _C = 30 mAdc, I _B = 0)	TIP41, TIP42 TIP41A, TIP42A TIP41B, TIP42B TIP41C, TIP42C	V _{CEO(sus)}	40 60 80 100	– – – –	Vdc
Collector Cutoff Current (V _{CE} = 30 Vdc, I _B = 0) (V _{CE} = 60 Vdc, I _B = 0)	TIP41, TIP41A, TIP42, TIP42A TIP41B, TIP41C, TIP42B, TIP42C	I _{CEO}	– –	0.7 0.7	mAdc
Collector Cutoff Current (V _{CE} = 40 Vdc, V _{EB} = 0) (V _{CE} = 60 Vdc, V _{EB} = 0) (V _{CE} = 80 Vdc, V _{EB} = 0) (V _{CE} = 100 Vdc, V _{EB} = 0)	TIP41, TIP42 TIP41A, TIP42A TIP41B, TIP42B TIP41C, TIP42C	I _{CES}	– – – –	400 400 400 400	μAdc
Emitter Cutoff Current (V _{BE} = 5.0 Vdc, I _C = 0)		I _{EBO}	–	1.0	mAdc

ON CHARACTERISTICS (Note 2)

DC Current Gain (I _C = 0.3 Adc, V _{CE} = 4.0 Vdc) (I _C = 3.0 Adc, V _{CE} = 4.0 Vdc)	h _{FE}	30 15	– 75	–
Collector–Emitter Saturation Voltage (I _C = 6.0 Adc, I _B = 600 mAdc)	V _{CE(sat)}	–	1.5	Vdc
Base–Emitter On Voltage (I _C = 6.0 Adc, V _{CE} = 4.0 Vdc)	V _{BE(on)}	–	2.0	Vdc

DYNAMIC CHARACTERISTICS

Current–Gain — Bandwidth Product (I _C = 500 mAdc, V _{CE} = 10 Vdc, f _{test} = 1.0 MHz)	f _T	3.0	–	MHz
Small–Signal Current Gain (I _C = 0.5 Adc, V _{CE} = 10 Vdc, f = 1.0 kHz)	h _{fe}	20	–	–

2. Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%.

ORDERING INFORMATION

Device	Package	Shipping
TIP41	TO–220	50 Units / Rail
TIP41G	TO–220 (Pb–Free)	50 Units / Rail
TIP41A	TO–220	50 Units / Rail
TIP41AG	TO–220 (Pb–Free)	50 Units / Rail
TIP41B	TO–220	50 Units / Rail
TIP41BG	TO–220 (Pb–Free)	50 Units / Rail
TIP41C	TO–220	50 Units / Rail
TIP41CG	TO–220 (Pb–Free)	50 Units / Rail
TIP42	TO–220	50 Units / Rail
TIP42G	TO–220 (Pb–Free)	50 Units / Rail
TIP42A	TO–220	50 Units / Rail
TIP42AG	TO–220 (Pb–Free)	50 Units / Rail
TIP42B	TO–220	50 Units / Rail
TIP42BG	TO–220 (Pb–Free)	50 Units / Rail
TIP42C	TO–220	50 Units / Rail
TIP42CG	TO–220 (Pb–Free)	50 Units / Rail

TIP41, TIP41A, TIP41B, TIP41C (NPN); TIP42, TIP42A, TIP42B, TIP42C (PNP)

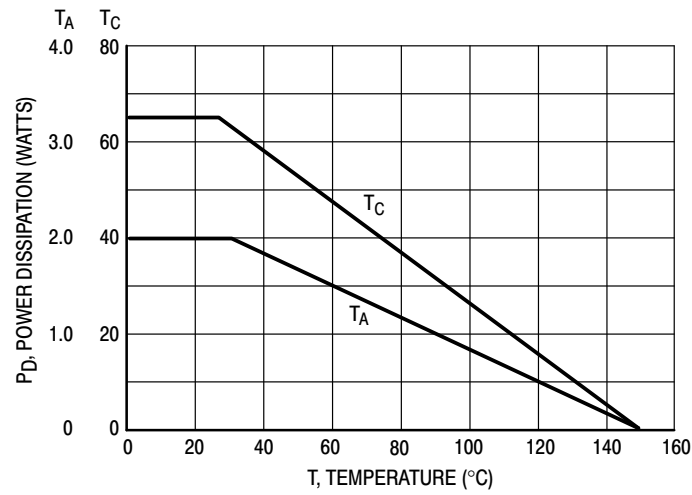


Figure 1. Power Derating

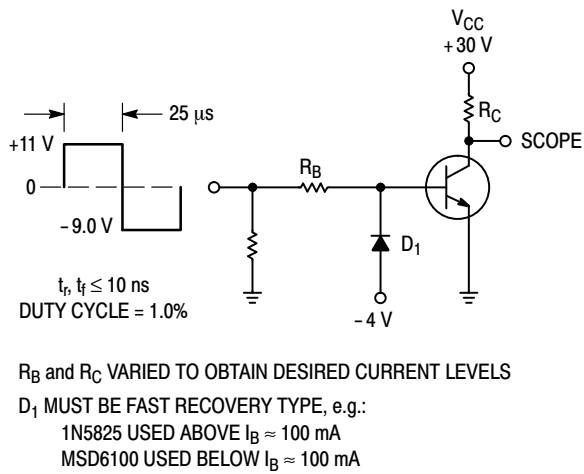


Figure 2. Switching Time Test Circuit

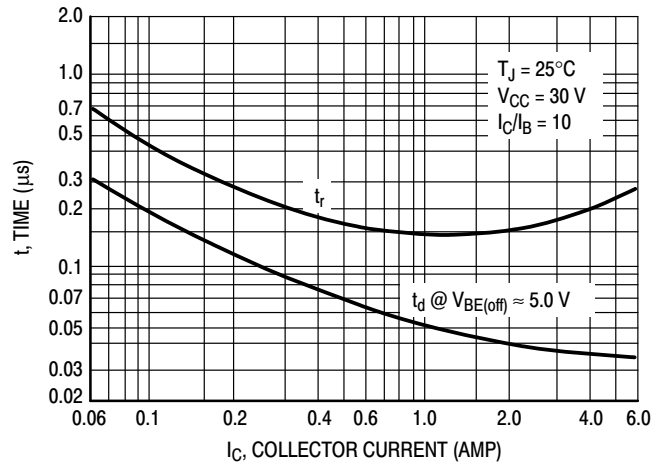


Figure 3. Turn-On Time

TIP41, TIP41A, TIP41B, TIP41C (NPN); TIP42, TIP42A, TIP42B, TIP42C (PNP)

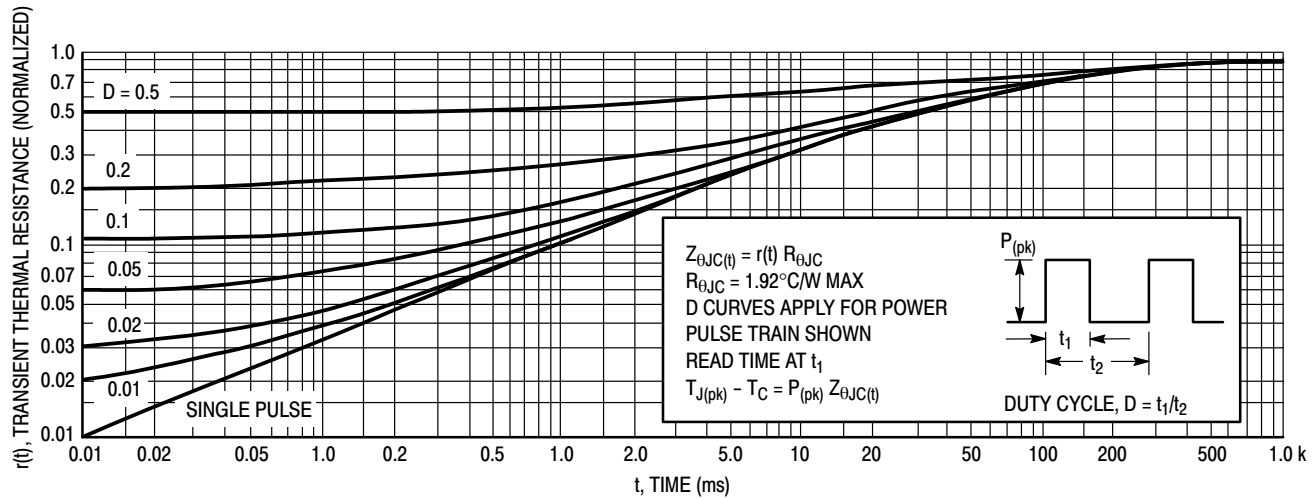


Figure 4. Thermal Response

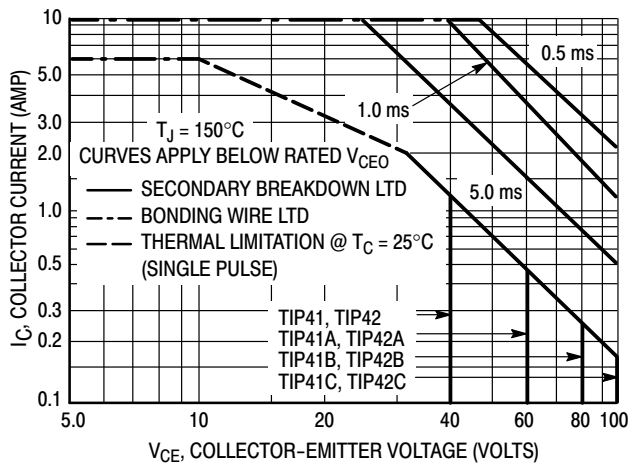


Figure 5. Active-Region Safe Operating Area

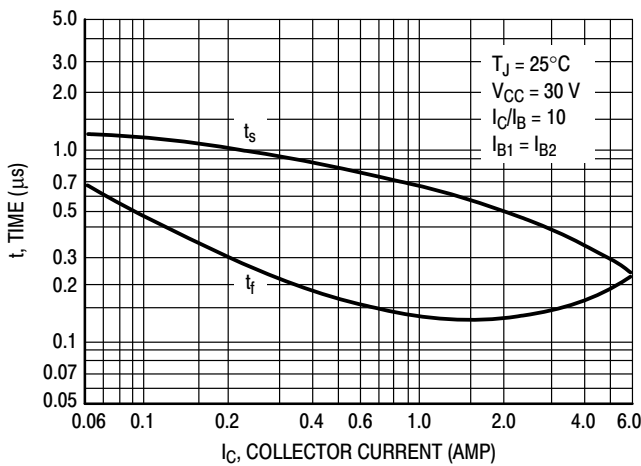


Figure 6. Turn-Off Time

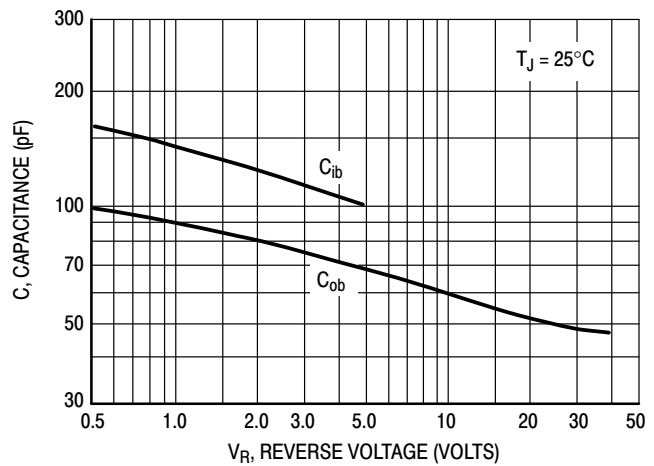


Figure 7. Capacitance

TIP41, TIP41A, TIP41B, TIP41C (NPN); TIP42, TIP42A, TIP42B, TIP42C (PNP)

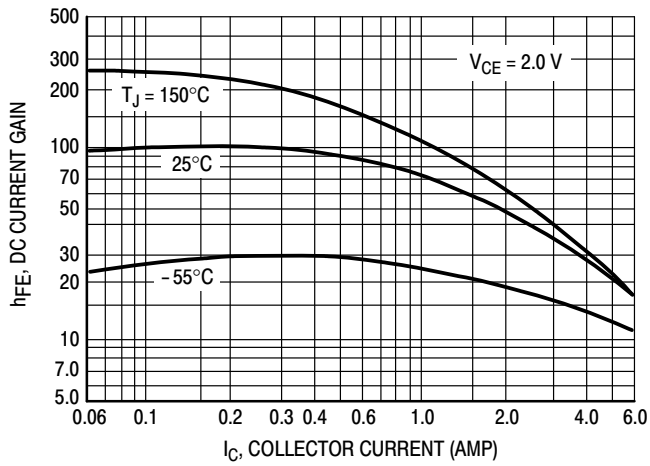


Figure 8. DC Current Gain

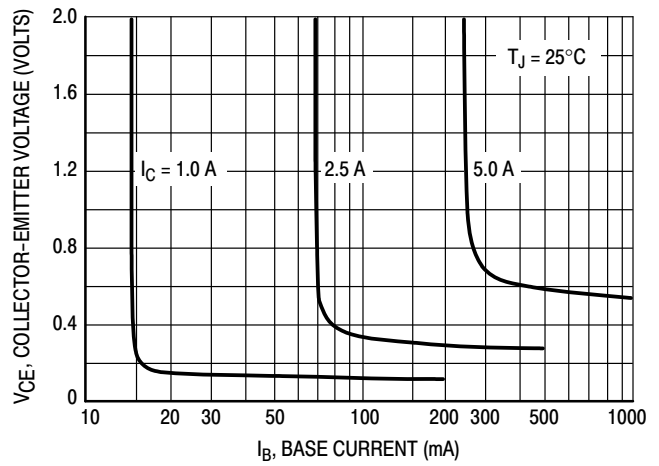


Figure 9. Collector Saturation Region

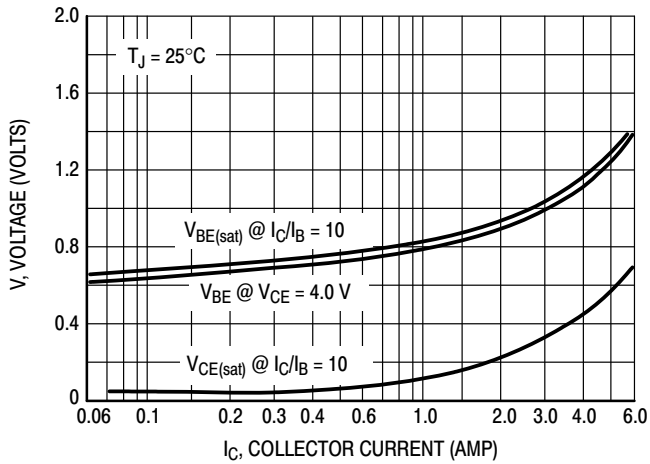


Figure 10. "On" Voltages

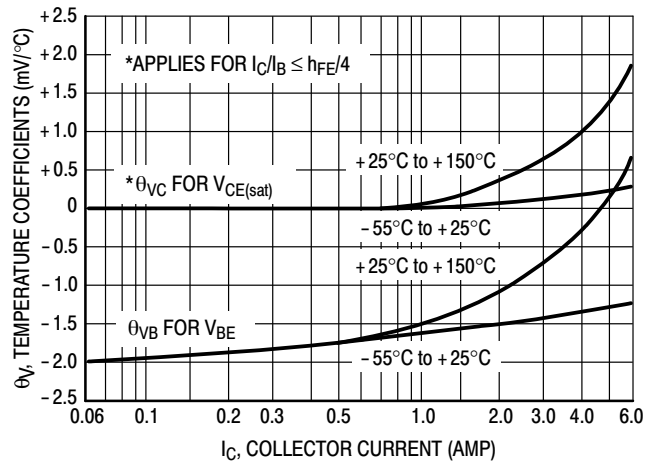


Figure 11. Temperature Coefficients

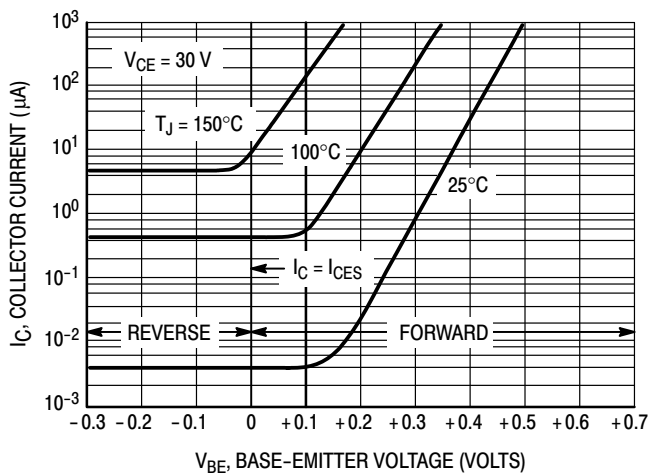


Figure 12. Collector Cut-Off Region

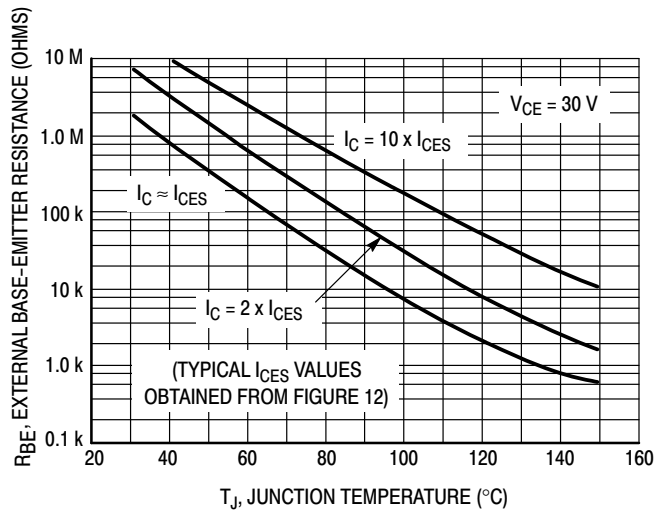
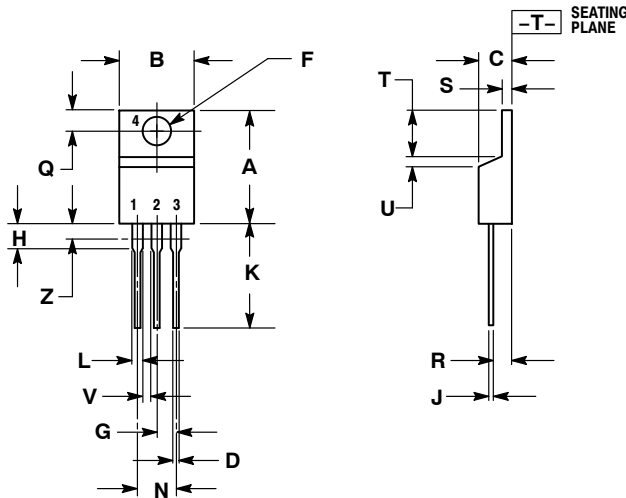


Figure 13. Effects of Base-Emitter Resistance

TIP41, TIP41A, TIP41B, TIP41C (NPN); TIP42, TIP42A, TIP42B, TIP42C (PNP)

PACKAGE DIMENSIONS

TO-220 CASE 221A-09 ISSUE AG



NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. DIMENSION Z DEFINES A ZONE WHERE ALL BODY AND LEAD IRREGULARITIES ARE ALLOWED.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.570	0.620	14.48	15.75
B	0.380	0.405	9.66	10.28
C	0.160	0.190	4.07	4.82
D	0.025	0.036	0.64	0.91
F	0.142	0.161	3.61	4.09
G	0.095	0.105	2.42	2.66
H	0.110	0.161	2.80	4.10
J	0.014	0.025	0.36	0.64
K	0.500	0.562	12.70	14.27
L	0.045	0.060	1.15	1.52
N	0.190	0.210	4.83	5.33
Q	0.100	0.120	2.54	3.04
R	0.080	0.110	2.04	2.79
S	0.045	0.055	1.15	1.39
T	0.235	0.255	5.97	6.47
U	0.000	0.050	0.00	1.27
V	0.045	---	1.15	---
Z	---	0.080	---	2.04

STYLE 1:

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

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

Данный компонент на территории Российской Федерации

Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: info@moschip.ru

Skype отдела продаж:

moschip.ru

moschip.ru_4

moschip.ru_6

moschip.ru_9