



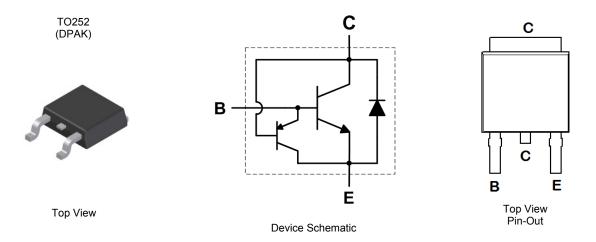
450V NPN HIGH VOLTAGE POWER TRANSISTOR IN TO252

Features

- BV_{CEO} > 450V
- BV_{CES} > 700V
- BV_{EBO} > 9V
- I_C = 1.5A high Continuous Collector Current
- Integrated Anti-Parallel Diode to act as free-wheeling diode
- Totally Lead-Free & Fully RoHS compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)

Mechanical Data

- Case: TO252 (DPAK)
- Case Material: Molded Plastic, "Green" Molding Compound UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish Matte Tin Plated Leads; Solderable per MIL-STD-202, Method 208 (3)
- Weight: 0.34 grams (approximate)



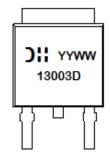
Ordering Information (Note 4)

Product	Compliance	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
DXT13003DK-13	Standard	13003D	13	16	2,500

Notes:

- 1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
- 2. See http://www.diodes.com/quality/lead_free.html for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
- 3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
- 4. For packaging details, go to our website at http://www.diodes.com/products/packages.html.

Marking Information



13003D = Product Type Marking Code **DII** = Manufacturer's Code Marking

YYWW = Date Code Marking

YY = Last Digit of Year (ex: 14 = 2014)

WW = Week Code (01-53)



Absolute Maximum Ratings (@TA = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Collector-Emitter Voltage (V _{BE} = 0V)	V _{CES}	700	V
Collector-Emitter Voltage	V _{CEO}	450	V
Emitter-Base Voltage	V _{EBO}	9	V
Continuous Collector Current	lc	1.5	Α
Peak Pulse Collector Current (Note 5)	I _{CM}	3	Α
Continuous Base Current	I _B	0.75	A
Peak Pulse Base Current (Note 5)	I _{BM}	1.5	A

Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit		
	(Note 6)		3.9		
Dower Dissipation	(Note 7)		2.5	W	
Power Dissipation	(Note 8)	P _D	2.1	VV	
	(Note 9)		1.6		
	(Note 6)		32		
Thermal Peciatones, Junction to Ambient Air	(Note 7)	R _{θJA}	51		
Thermal Resistance, Junction to Ambient Air	(Note 8)		59	°C/W	
	(Note 9)		80		
Thermal Resistance, Junction to Leads	(Note 10)	$R_{ heta JL}$	3		
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C		

ESD Ratings (Note 11)

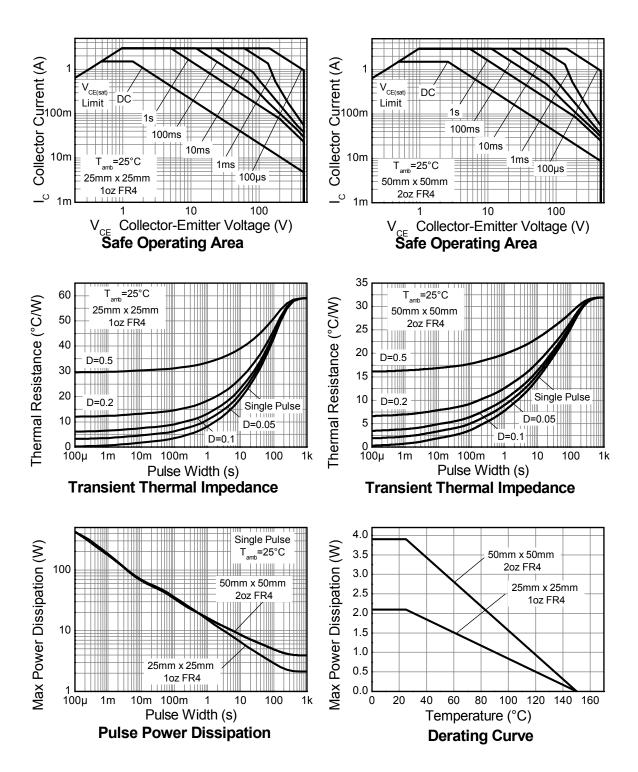
Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	8,000	V	3B
Electrostatic Discharge - Machine Model	ESD MM	400	V	С

Notes:

- 5. Pulse test for pulse width < 5ms, duty cycle ≤ 10%.
 6. For a device mounted with the exposed collector pad on 50mm x 50mm 2oz copper that is on a single-sided 1.6mm FR4 PCB; device is measured under still air conditions whilst operating in a steady-state.
- 7. Same as note (6), except the device is surface mounted on 25mm x 25mm 2oz copper.
- 8. Same as note (6), except the device is surface mounted on 25mm x 25mm 1oz copper.
- 9. Same as note (6), except mounted on minimum recommended pad (MRP) layout.
- Thermal resistance from junction to solder-point (on the exposed collector pad).
 Refer to JEDEC specification JESD22-A114 and JESD22-A115.



Thermal Characteristics and Derating Information



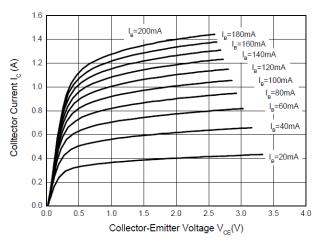


Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

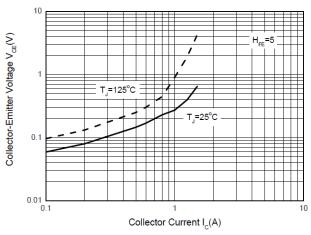
Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition
Collector-Emitter Breakdown Voltage	BV _{CES}	700	_	_	V	I _C = 100μA, V _{BE} = 0V
Collector-Emitter Breakdown Voltage	BV _{CEO}	450	_	_	V	I _C = 100μA
Emitter-Base Breakdown Voltage	BV _{EBO}	9	_	_	V	I _E = 100μA
Collector Cutoff Current	I _{CEV}	_	_	10	μA	V _{CE} = 700V, V _{BE} = -1.5V
DC current transfer Static ratio (Note 12)	h _{FE}	20 16 5	- -	40 30 25	_	$I_C = 20$ mA, $V_{CE} = 10$ V $I_C = 0.5$ A, $V_{CE} = 2$ V $I_C = 1.0$ A, $V_{CE} = 2$ V
Collector-Emitter Saturation Voltage (Note 12)	V _{CE(sat)}		_	0.3 0.4	V	$I_C = 0.5A$, $I_B = 0.1A$ $I_C = 1A$, $I_B = 0.25A$
Base-Emitter Saturation Voltage (Note 12)	V _{BE(sat)}	1 1		1.0 1.2	V	$I_C = 0.5A$, $I_B = 0.1A$ $I_C = 1A$, $I_B = 0.25A$
Output Capacitance	C _{ob}	_	18	_	pF	V _{CB} = 10V, f = 0.1MHz
Transition Frequency	f _T	4	_	_	MHz	I _C = 0.1A, V _{CE} = 10V
Turn-on Time with Resistive Load	t _{on}	_	0.35	_		
Storage Time with Resistive Load	ts	_	2.31	_	IIS I -	$I_C = 1A, V_{CC} = 125V, I_{B1} = 0.2A,$ $I_{B2} = -0.2A$
Fall Time with Resistive Load	t _f	_	0.21	_		IB20.2A

Note:

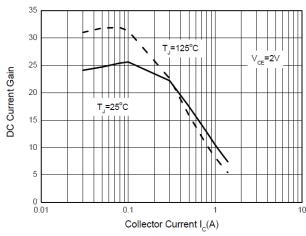
Typical Electrical Characteristics (@TA = +25°C, unless otherwise specified.)



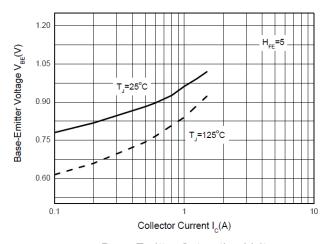




Collector-Emitter Saturation Region



DC Current Gain



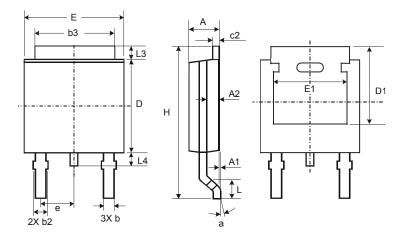
Base-Emitter Saturation Voltage

^{12.} Measured under pulsed conditions. Pulse width ≤ 300µs. Duty cycle ≤ 2%.



Package Outline Dimensions

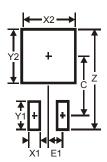
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for latest version.



TO252					
Dim	Min	Max	Тур		
Α	2.19	2.39	2.29		
A1	0.00	0.13	0.08		
A2	0.97	1.17	1.07		
b	0.64	0.88	0.783		
b2	0.76	1.14	0.95		
b3	5.21	5.46	5.33		
c2	0.45	0.58	0.531		
D	6.00	6.20	6.10		
D1	5.21	_	_		
е	_	_	2.286		
Е	6.45	6.70	6.58		
E1	4.32	_	_		
Н	9.40	10.41	9.91		
L	1.40	1.78	1.59		
L3	0.88	1.27	1.08		
L4	0.64	1.02	0.83		
а	0°	10°	_		
All D	All Dimensions in mm				

Suggested Pad Layout

Please see AP02001 at http://www.diodes.com/datasheets/ap02001.pdf for the latest version.



Dimensions	Value (in mm)
Z	11.6
X1	1.5
X2	7.0
Y1	2.5
Y2	7.0
С	6.9
F1	2.3

Note: For high voltage applications, the appropriate industry sector guidelines should be considered with regards to creepage and clearance distances between device Terminals and PCB tracking.



IMPORTANT NOTICE

DIODES INCORPORATED MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARDS TO THIS DOCUMENT, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION).

Diodes Incorporated and its subsidiaries reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to this document and any product described herein. Diodes Incorporated does not assume any liability arising out of the application or use of this document or any product described herein; neither does Diodes Incorporated convey any license under its patent or trademark rights, nor the rights of others. Any Customer or user of this document or products described herein in such applications shall assume all risks of such use and will agree to hold Diodes Incorporated and all the companies whose products are represented on Diodes Incorporated website, harmless against all damages.

Diodes Incorporated does not warrant or accept any liability whatsoever in respect of any products purchased through unauthorized sales channel. Should Customers purchase or use Diodes Incorporated products for any unintended or unauthorized application, Customers shall indemnify and hold Diodes Incorporated and its representatives harmless against all claims, damages, expenses, and attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized application.

Products described herein may be covered by one or more United States, international or foreign patents pending. Product names and markings noted herein may also be covered by one or more United States, international or foreign trademarks.

This document is written in English but may be translated into multiple languages for reference. Only the English version of this document is the final and determinative format released by Diodes Incorporated.

LIFE SUPPORT

Diodes Incorporated products are specifically not authorized for use as critical components in life support devices or systems without the express written approval of the Chief Executive Officer of Diodes Incorporated. As used herein:

- A. Life support devices or systems are devices or systems which:
 - 1. are intended to implant into the body, or
 - 2. support or sustain life and 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.
- B. A critical component is any component in a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or to affect its safety or effectiveness.

Customers represent that they have all necessary expertise in the safety and regulatory ramifications of their life support devices or systems, and acknowledge and agree that they are solely responsible for all legal, regulatory and safety-related requirements concerning their products and any use of Diodes Incorporated products in such safety-critical, life support devices or systems, notwithstanding any devices- or systems-related information or support that may be provided by Diodes Incorporated. Further, Customers must fully indemnify Diodes Incorporated and its representatives against any damages arising out of the use of Diodes Incorporated products in such safety-critical, life support devices or systems.

Copyright © 2014, Diodes Incorporated

www.diodes.com

ПОСТАВКА ЭЛЕКТРОННЫХ КОМПОНЕНТОВ

многоканальный

Общество с ограниченной ответственностью «МосЧип» ИНН 7719860671 / КПП 771901001 Адрес: 105318, г.Москва, ул.Щербаковская д.3, офис 1107

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_6 moschip.ru 4 moschip.ru 9