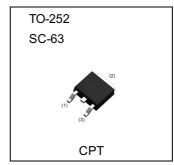


Power Transistor (100V, 2A)

Parameter	Value
V _{CEO}	100V
I _C	2A
R ₁	3.5kΩ
R ₂	300Ω

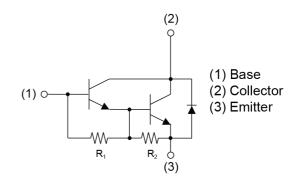
Outline



Features

- 1)Darlington connection for high DC current again.
- 2)Built-in resistor between base and emitter.
- 3)Built -in damper diode.
- 4)Complements the 2SB1316.

•Inner circuit



Application

RELAY DRIVE, MOTOR DRIVE

Packaging specifications

Part No.	Package	Package size	Taping code	Reel size (mm)	Tape width (mm)	Basic ordering unit.(pcs)	Marking
2SD1980	TO-252 (CPT)	6595	TL	330	16	2500	D1980

● Absolute maximum ratings (T_a = 25°C)

Parameter	Symbol	Values	Unit
Collector-base voltage	V_{CBO}	100	V
Collector-emitter voltage	V _{CEO}	100	V
Emitter-base voltage	V _{EBO}	6	V
Calla star a come at	I _C	2	Α
Collector current	I _{CP} *1	3	Α
Device discipation	P_{D}	1.0	W
Power dissipation	P _D *2	10	W
Junction temperature	T _j	150	°C
Range of storage temperature	T _{stg}	-55 to +150	°C

● Electrical characteristics (T_a = 25°C)

Darameter	Cymahal	Conditions	Values			Unit	
Parameter	Symbol	Conditions	Min.	Тур.	Max.	UIIIL	
Collector-base breakdown voltage	BV _{CBO}	I _C = 50μA	100	-	-	V	
Collector-emitter breakdown voltage	BV _{CEO}	_{CEO} I _C = 5mA		-	-	V	
Emitter-base breakdown voltage	BV _{EBO}	I _E = 5mA	6	1	-	V	
Collector cut-off current	I _{CBO}	V _{CB} = 100V	-	-	10	μA	
Emitter cut-off current	I _{EBO}	V _{EB} = 5V	-	1	3	mA	
Collector-emitter saturation voltage	V _{CE(sat)} *3	I _C = 1A, I _B = 1mA	-	-	1.5	V	
DC current gain	h _{FE} *3	V _{CE} = 2V, I _C = 1A	1k	-	10k	-	
Transition frequency	f _T	$V_{CE} = 5V, I_{E} = -0.1A,$ f = 30MHz	-	80	-	MHz	
Output capacitance	C _{ob}	$V_{CB} = 10V, I_{E} = 0A,$ f = 1MHz	-	25	-	pF	

^{*} Pw=100ms, Single Pulse.

^{*2} Tc=25℃

^{*3} Pulsed

● Electrical characteristic curves(T_a = 25°C)

Fig.1 Ground Emitter Propagation Characteristics

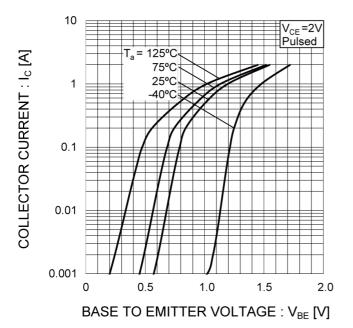
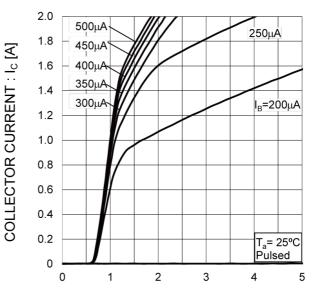


Fig.2 Typical Output Characteristics



COLLECTOR TO EMITTER VOLTAGE: VCE [V]

Fig.3 DC Current Gain vs. Collector Current (I)

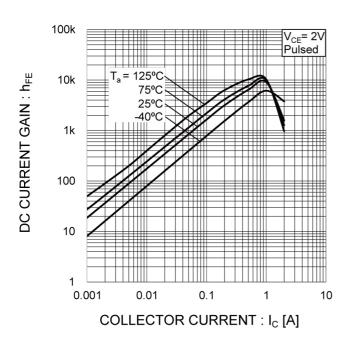
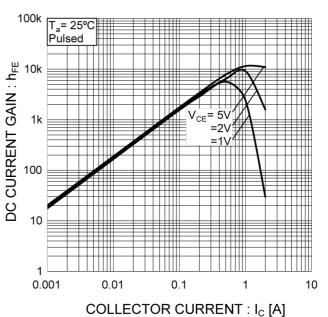


Fig.4 DC Current Gain vs. Collector Current (II)



● Electrical characteristic curves(T_a = 25°C)

Fig.5 Collector-Emitter Saturation Voltage vs. Collector Current (I)

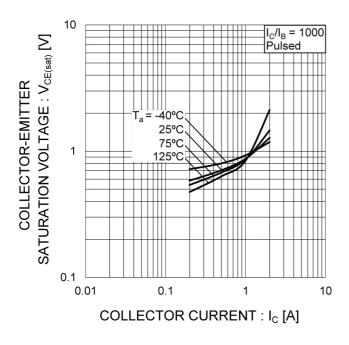


Fig.6 Collector-Emitter Saturation
Voltage vs. Collector Current (II)

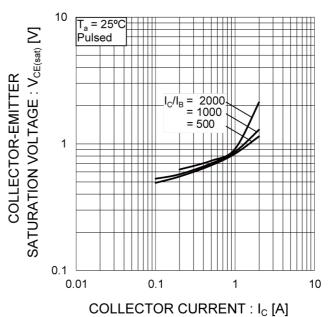


Fig.7 Base-Emitter Saturation Voltage vs. Collector Current

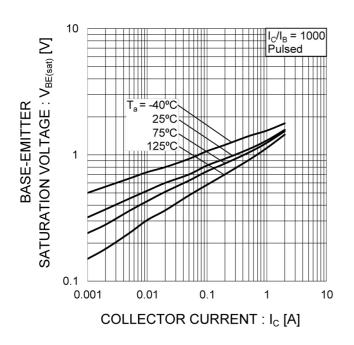
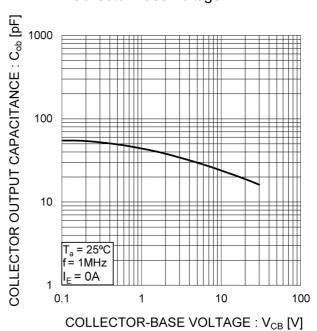
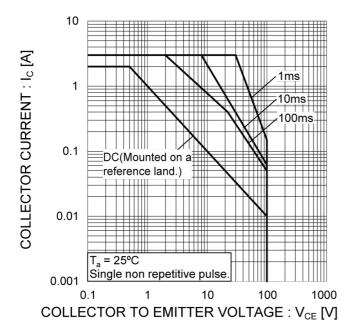


Fig.8 Collector Output Capacitance vs. Collector-Base Voltage



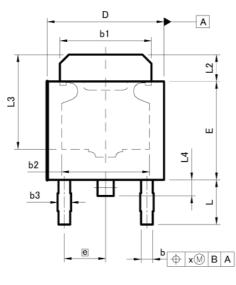
• Electrical characteristic curves($T_a = 25$ °C)

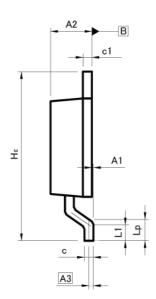
Fig.9 Safe Operating Area

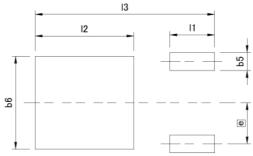


Dimensions

TO-252 DPAK (CPT3)







Pattern of terminal position areas [Not a pattern of soldering pads]

DIM	MILIM	ETERS	INC	HES	
DIM	MIN	MAX	MIN	MAX	
A1	0.00	0.15	0.000	0.006	
A2	2.20	2.50	0.087	0.098	
A3	0.	25	0.0	10	
b	0.55	0.75	0.022	0.030	
b1	5.00	5.30	0.197	0.209	
b2	4.	90	0.1	93	
b3	0.	75	0.0	30	
С	0.40	0.60	0.016	0.024	
c1	0.40	0.60	0.016	0.024	
D	6.30	6.70	0.248	0.264	
E	5.40	5.80	0.213	0.228	
е	2.	30	0.091		
HE	9.00	10.00	0.354	0.394	
L	2.20	2.80	0.087	0.110	
L1	0.80	1.40	0.031	0.055	
L2	1.20	1.80	0.047	0.071	
L3	5.30		0.209		
L4	0.90		0.0	35	
Lp	1.00	1.60	0.039	0.063	
Х	_	0.25	_	0.010	

DIM	MILIMETERS		INCHES	
500000	MIN	MAX	MIN	MAX
b5	_	1.00	_	0.04
b6	_	5.20	_	0.205
11	-	2.50		0.098
12	_	5.50	_	0.217
13	_	10.00		0.394

Dimension in mm/inches



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1	JÁPAN	USA	EU	CHINA
	CLASSIII	OL ACOM	CLASS II b	ОГУСОШ
	CLASSIV	CLASSⅢ	CLASSIII	CLASSⅢ

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 - [b] Installation of redundant circuits to reduce the impact of single or multiple circuit failure
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 - [b] Use of our Products outdoors or in places where the Products are exposed to direct sunlight or dust
 - [c] Use of our Products in places where the Products are exposed to sea wind or corrosive gases, including Cl₂, H₂S, NH₃, SO₂, and NO₂
 - [d] Use of our Products in places where the Products are exposed to static electricity or electromagnetic waves
 - [e] Use of our Products in proximity to heat-producing components, plastic cords, or other flammable items
 - [f] Sealing or coating our Products with resin or other coating materials
 - [g] Use of our Products without cleaning residue of flux (even if you use no-clean type fluxes, cleaning residue of flux is recommended); or Washing our Products by using water or water-soluble cleaning agents for cleaning residue after soldering
 - [h] Use of the Products in places subject to dew condensation
- 4. The Products are not subject to radiation-proof design.
- 5. Please verify and confirm characteristics of the final or mounted products in using the Products.
- 6. In particular, if a transient load (a large amount of load applied in a short period of time, such as pulse. is applied, confirmation of performance characteristics after on-board mounting is strongly recommended. Avoid applying power exceeding normal rated power; exceeding the power rating under steady-state loading condition may negatively affect product performance and reliability.
- 7. De-rate Power Dissipation depending on ambient temperature. When used in sealed area, confirm that it is the use in the range that does not exceed the maximum junction temperature.
- 8. Confirm that operation temperature is within the specified range described in the product specification.
- 9. ROHM shall not be in any way responsible or liable for failure induced under deviant condition from what is defined in this document.

Precaution for Mounting / Circuit board design

- 1. When a highly active halogenous (chlorine, bromine, etc.) flux is used, the residue of flux may negatively affect product performance and reliability.
- 2. In principle, the reflow soldering method must be used on a surface-mount products, the flow soldering method must be used on a through hole mount products. If the flow soldering method is preferred on a surface-mount products, please consult with the ROHM representative in advance.

For details, please refer to ROHM Mounting specification

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- 1. If change is made to the constant of an external circuit, please allow a sufficient margin considering variations of the characteristics of the Products and external components, including transient characteristics, as well as static characteristics.
- You agree that application notes, reference designs, and associated data and information contained in this document are presented only as guidance for Products use. Therefore, in case you use such information, you are solely responsible for it and you must exercise your own independent verification and judgment in the use of such information contained in this document. ROHM shall not be in any way responsible or liable for any damages, expenses or losses incurred by you or third parties arising from the use of such information.

Precaution for Electrostatic

This Product is electrostatic sensitive product, which may be damaged due to electrostatic discharge. Please take proper caution in your manufacturing process and storage so that voltage exceeding the Products maximum rating will not be applied to Products. Please take special care under dry condition (e.g. Grounding of human body / equipment / solder iron, isolation from charged objects, setting of lonizer, friction prevention and temperature / humidity control).

Precaution for Storage / Transportation

- 1. Product performance and soldered connections may deteriorate if the Products are stored in the places where:
 - [a] the Products are exposed to sea winds or corrosive gases, including Cl2, H2S, NH3, SO2, and NO2
 - [b] the temperature or humidity exceeds those recommended by ROHM
 - [c] the Products are exposed to direct sunshine or condensation
 - [d] the Products are exposed to high Electrostatic
- Even under ROHM recommended storage condition, solderability of products out of recommended storage time period
 may be degraded. It is strongly recommended to confirm solderability before using Products of which storage time is
 exceeding the recommended storage time period.
- 3. Store / transport cartons in the correct direction, which is indicated on a carton with a symbol. Otherwise bent leads may occur due to excessive stress applied when dropping of a carton.
- 4. Use Products within the specified time after opening a humidity barrier bag. Baking is required before using Products of which storage time is exceeding the recommended storage time period.

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2SD1980 - Web Page

Distribution Inventory

Part Number	2SD1980
Package	CPT3
Unit Quantity	2500
Minimum Package Quantity	2500
Packing Type	Taping
Constitution Materials List	inquiry
RoHS	Yes