

## Silicon NPN Darlington Power Transistors

2SC3144

## DESCRIPTION

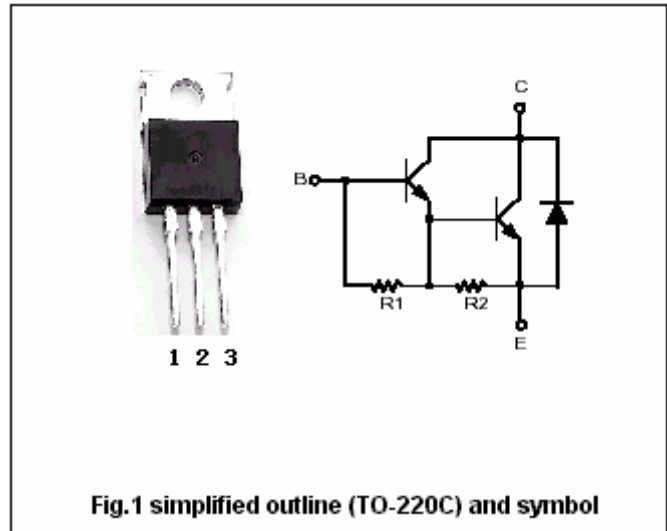
- With TO-220C package
- High switching speed
- High DC current gain
- Wide area of safe operation
- Complement to type 2SA1258

## APPLICATIONS

- 60V/3A for High-Speed Drivers Applications

## PINNING

PIN	DESCRIPTION
1	Base
2	Collector;connected to mounting base
3	Emitter

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

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$V_{CBO}$	Collector-base voltage	Open emitter	70	V
$V_{CEO}$	Collector-emitter voltage	Open base	60	V
$V_{EBO}$	Emitter-base voltage	Open collector	5	V
$I_C$	Collector current-DC		3	A
$I_{CP}$	Collector current-Pulse		5	A
$P_C$	Collector power dissipation	$T_C=25^\circ\text{C}$	20	W
		$T_a=25^\circ\text{C}$	1.75	
$T_j$	Junction temperature		125	$^\circ\text{C}$
$T_{stg}$	Storage temperature		-55~125	$^\circ\text{C}$

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## CHARACTERISTICS

T<sub>j</sub>=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V <sub>(BR)CEO</sub>	Collector-emitter breakdown voltage	I <sub>C</sub> =50mA ; R <sub>BE</sub> =∞	60			V
V <sub>(BR)CBO</sub>	Collector-base breakdown voltage	I <sub>C</sub> =5mA ; I <sub>E</sub> =0	70			V
V <sub>CE(sat)-1</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =1.5A , I <sub>B</sub> =3mA		0.9	1.5	V
V <sub>CE(sat)-2</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =1.5A , I <sub>B</sub> =3mA			2.0	V
I <sub>CBO</sub>	Collector cut-off current	V <sub>CB</sub> =40V, I <sub>E</sub> =0			0.1	mA
I <sub>EBO</sub>	Emitter cut-off current	V <sub>EB</sub> =5V; I <sub>C</sub> =0			3.0	mA
h <sub>FE</sub>	DC current gain	I <sub>C</sub> =1.5A ; V <sub>CE</sub> =2V	2000			
f <sub>T</sub>	Transition frequency	I <sub>C</sub> =1.5A ; V <sub>CE</sub> =5V		200		MHz

## Switching times

t <sub>on</sub>	Turn-on time	I <sub>C</sub> =1A ; I <sub>B1</sub> =-I <sub>B2</sub> =2m A R <sub>L</sub> =20 Ω , V <sub>CC</sub> =20V		0.3		μ s
t <sub>s</sub>	Storage time			1.2		μ s
t <sub>f</sub>	Fall time			0.2		μ s

