

**isc Silicon NPN Darlington Power Transistor**
**2SC3144**
**DESCRIPTION**

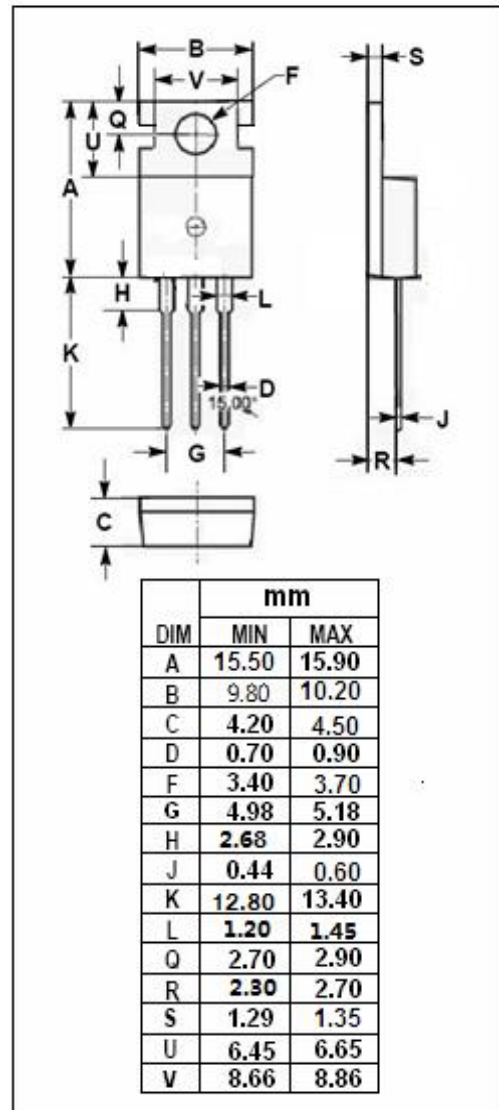
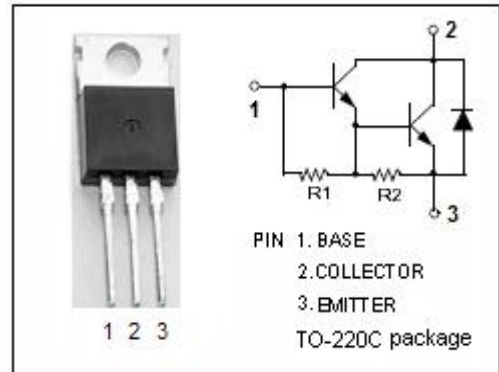
- Collector-Emitter Breakdown Voltage-  
:  $V_{(BR)CEO} = 60V(\text{Min})$
- High DC Current Gain  
:  $h_{FE} = 2000(\text{Min}) @ I_C = 1.5A$
- Wide Area of Safe Operation
- Complement to Type 2SA1258
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

**APPLICATIONS**

- Designed for high-speed drivers applications.

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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector-Base Voltage	70	V
$V_{CEO}$	Collector-Emitter Voltage	60	V
$V_{EBO}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current-Continuous	3	A
$I_{CP}$	Collector Current-Peak	5	A
$P_C$	Collector Power Dissipation @ $T_a = 25^\circ\text{C}$	1.75	W
	Collector Power Dissipation @ $T_c = 25^\circ\text{C}$	20	
$T_J$	Junction Temperature	125	$^\circ\text{C}$
$T_{stg}$	Storage Temperature Range	-55~125	$^\circ\text{C}$



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**ELECTRICAL CHARACTERISTICS**

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V <sub>(BR)CBO</sub>	Collector-Base Breakdown Voltage	I <sub>C</sub> = 5mA; I <sub>E</sub> = 0	70			V
V <sub>CEO(SUS)</sub>	Collector-Emitter Sustaining Voltage	I <sub>C</sub> = 50mA; R <sub>BE</sub> = ∞	60			V
V <sub>CE(sat)</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 1.5A; I <sub>B</sub> = 3mA			1.5	V
V <sub>BE(sat)</sub>	Base-Emitter Saturation Voltage	I <sub>C</sub> = 1.5A; I <sub>B</sub> = 3mA			2.0	V
I <sub>CBO</sub>	Collector Cutoff Current	V <sub>CB</sub> = 40V; I <sub>E</sub> =0			100	μ A
I <sub>EBO</sub>	Emitter Cutoff Current	V <sub>EB</sub> = 5V; I <sub>C</sub> =0			3	mA
h <sub>FE</sub>	DC Current Gain	I <sub>C</sub> = 1.5A; V <sub>CE</sub> = 2V	2000			
f <sub>T</sub>	Current-Gain—Bandwidth Product	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> = 2mA R <sub>L</sub> = 20 Ω ; V <sub>CC</sub> ≈ 20V		0.3		μ s
t <sub>stg</sub>	Storage Time			1.2		μ s
t <sub>f</sub>	Fall Time			0.2		μ s

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