

**DESCRIPTION**

- Low Saturation Voltage
- Good Linearity of  $h_{FE}$
- Fast Switching Speeds
- Complement to Type D45C1
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

**APPLICATIONS**

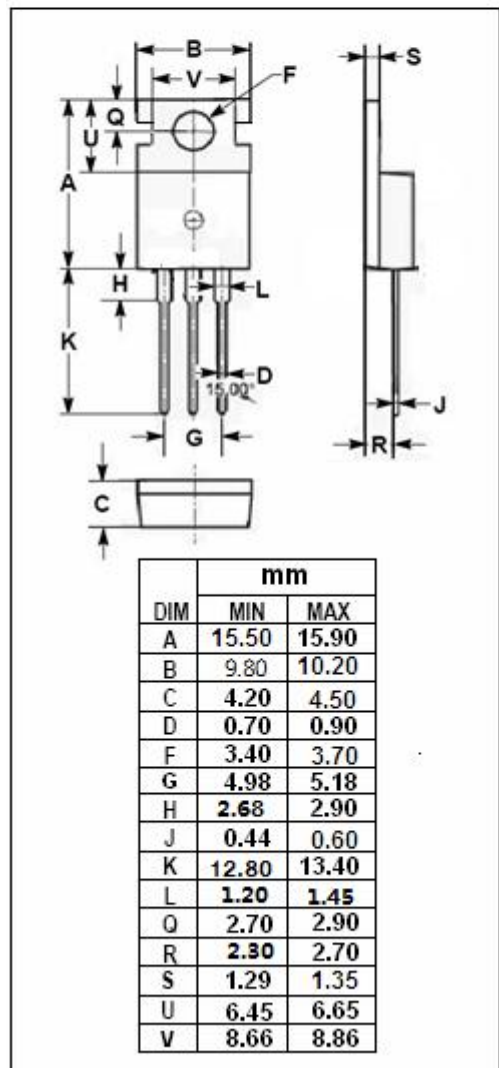
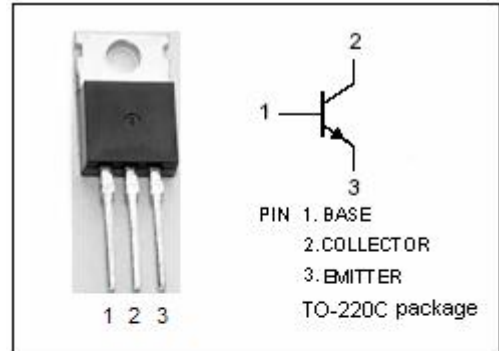
- Designed for various specific and general purpose application such as: output and driver stages of amplifiers operating at frequencies from DC to greater than 1.0MHz series, shunt and switching regulators; low and high frequency inverters/converters and many others.

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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CES}$	Collector-Emitter Voltage	40	V
$V_{CEO}$	Collector-Emitter Voltage	30	V
$V_{EBO}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current-Continuous	4	A
$I_{CM}$	Collector Current-Peak	6	A
$I_B$	Base Current-Continuous	1	A
$P_C$	Collector Power Dissipation @ $T_c=25^\circ\text{C}$	30	W
$T_j$	Junction Temperature	150	$^\circ\text{C}$
$T_{stg}$	Storage Temperature Range	-55~150	$^\circ\text{C}$

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal Resistance, Junction to Case	4.2	$^\circ\text{C/W}$



**ELECTRICAL CHARACTERISTICS**T<sub>c</sub>=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
V <sub>CE(sat)</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 1A; I <sub>B</sub> = 100mA			0.5	V
V <sub>BE(sat)</sub>	Base-Emitter Saturation Voltage	I <sub>C</sub> = 1A; I <sub>B</sub> = 100mA			1.3	V
I <sub>CES</sub>	Collector Cutoff Current	V <sub>CE</sub> = 40V, V <sub>BE</sub> = 0			10	μ A
I <sub>EBO</sub>	Emitter Cutoff Current	V <sub>EB</sub> = 5V; I <sub>C</sub> = 0			100	μ A
h <sub>FE-1</sub>	DC Current Gain	I <sub>C</sub> = 0.2A; V <sub>CE</sub> = 1V	25			
h <sub>FE-2</sub>	DC Current Gain	I <sub>C</sub> = 1A; V <sub>CE</sub> = 1V	10			
f <sub>T</sub>	Current-Gain—Bandwidth Product	I <sub>C</sub> = 20mA; V <sub>CE</sub> = 4V; f <sub>test</sub> = 1MHz		50		MHz

## Switching Times

t <sub>r</sub>	Rise Time	I <sub>C</sub> = 1A; I <sub>B1</sub> = -I <sub>B2</sub> = 0.1A; V <sub>CC</sub> = 20V			0.3	μ s
t <sub>s</sub>	Storage Time				0.7	μ s
t <sub>f</sub>	Fall Time				0.4	μ s

**NOTICE:**

ISC reserves the rights to make changes of the content herein the datasheet at any time without notification. The information contained herein is presented only as a guide for the applications of our products.

ISC products are intended for usage in general electronic equipment. The products are not designed for use in equipment which require specialized quality and/or reliability, or in equipment which could have applications in hazardous environments, aerospace industry, or medical field. Please contact us if you intend our products to be used in these special applications.

ISC makes no warranty or guarantee regarding the suitability of its products for any particular purpose, nor does ISC assume any liability arising from the application or use of any products, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages.