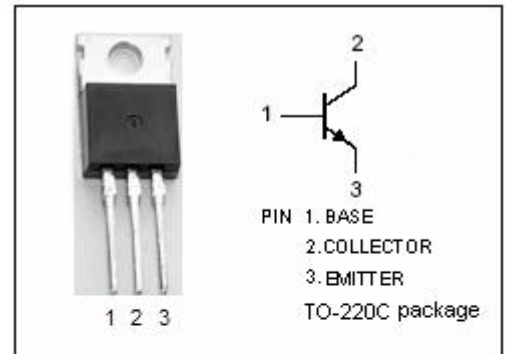


DESCRIPTION

- Collector-Emitter Sustaining Voltage-
: $V_{CEO(SUS)} = 40V(\text{Min})$
- Low Saturation Voltage-
: $V_{CE(sat)} = 1V(\text{Max}) @ I_C = 2.0A$

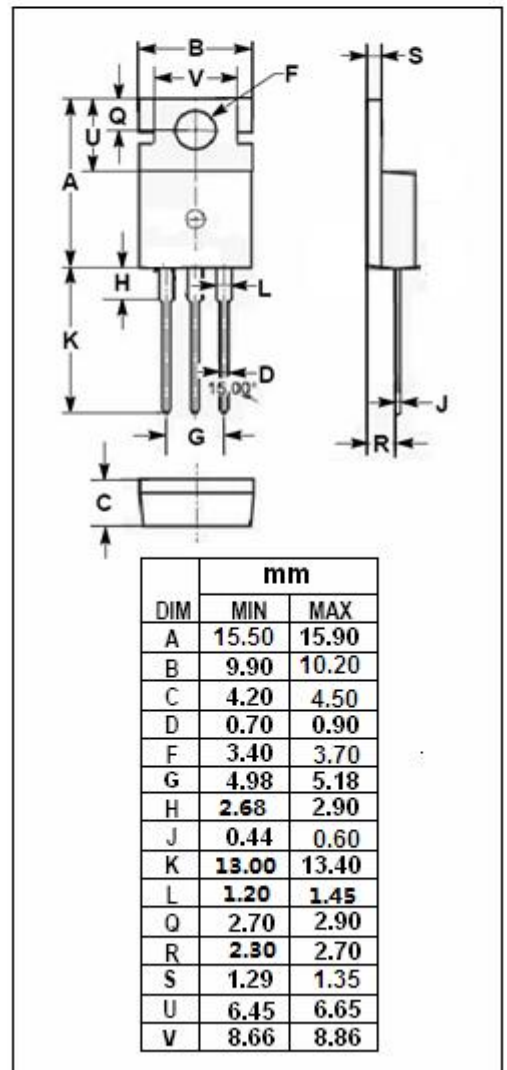
APPLICATIONS

- Designed for a wide variety of medium-power switching and amplifier applications , such as series and shunt regulators and driver and output stages of high-fidelity amplifiers.



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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	60	V
V_{CEV}	Collector-Emitter Voltage $V_{BE} = -1.5V$	60	V
V_{CER}	Collector-Emitter Voltage $R_{BE} = 100 \Omega$	50	V
V_{CEO}	Collector-Emitter Voltage	40	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current-Continuous	7	A
I_B	Base Current	3	A
P_C	Collector Power Dissipation @ $T_a=25^\circ\text{C}$	1.8	W
	Collector Power Dissipation @ $T_c=25^\circ\text{C}$	50	
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{stg}	Storage Temperature Range	-65~150	$^\circ\text{C}$



THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th j-c}$	Thermal Resistance, Junction to Case	2.5	$^\circ\text{C/W}$
$R_{th j-a}$	Thermal Resistance, Junction to Ambient	70	$^\circ\text{C/W}$

SPTECH Silicon NPN Power Transistor

2N5491

ELECTRICAL CHARACTERISTICS

$T_C=25^{\circ}\text{C}$ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
$V_{CE0(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C= 50\text{mA}; I_B= 0$	40		V
$V_{CER(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C= 100\text{mA}; R_{BE}= 100\ \Omega$	50		V
$V_{CEV(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C= 100\text{mA}; V_{BE}= -1.5\text{V}$	60		V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C= 2\ \text{A}; I_B= 0.2\ \text{A}$		1.0	V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C= 2\ \text{A}; V_{CE}= 4\ \text{V}$		1.1	V
I_{CEV}	Collector Cutoff Current	$V_{CE}= 55\text{V}; V_{BE}= -1.5\text{V}$ $V_{CE}= 55\text{V}; V_{BE}= -1.5\text{V}; T_C= 125^{\circ}\text{C}$		1.0 5.0	mA
I_{CER}	Collector Cutoff Current	$V_{CE}= 40\text{V}; R_{BE}= 100\ \Omega$ $V_{CE}= 40\text{V}; R_{BE}= 100\ \Omega; T_C= 125^{\circ}\text{C}$		2.0 3.5	mA
I_{EBO}	Emitter Cutoff Current	$V_{EB}= 5\text{V}; I_C= 0$		1.0	mA
h_{FE}	DC Current Gain	$I_C= 2\ \text{A}; V_{CE}= 4\ \text{V}$	20	100	
f_T	Current-Gain—Bandwidth Product	$I_C= 0.5\ \text{A}; V_{CE}= 4\ \text{V}$	0.8		MHz

Switching Times

t_{on}	Turn-On Time	$I_C= 2\ \text{A}; I_{B1}= -I_{B2}= 0.2\ \text{A}$		5	$\mu\ \text{s}$
t_{off}	Turn-Off Time			15	$\mu\ \text{s}$