

**isc Silicon NPN Power Transistor**

**2SD1706**

**DESCRIPTION**

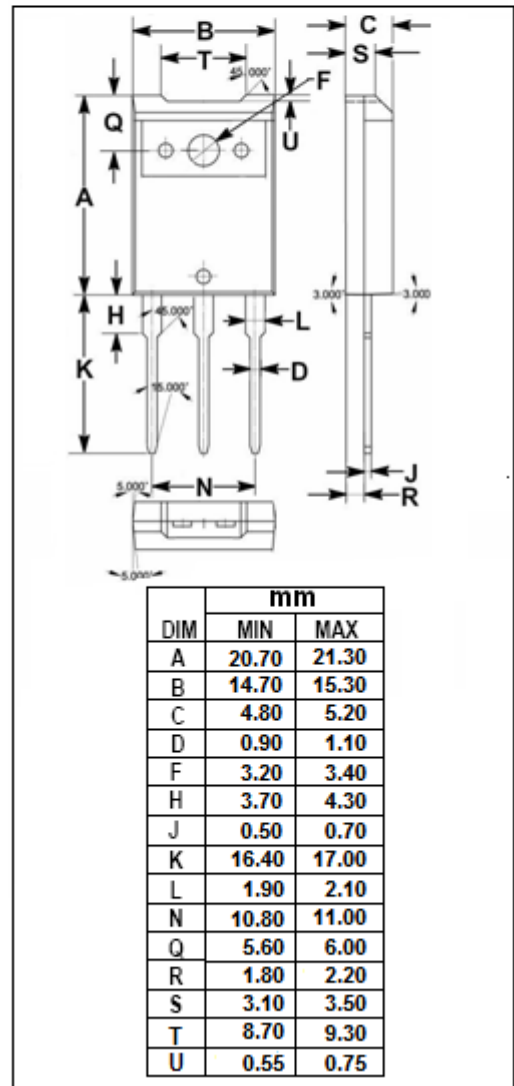
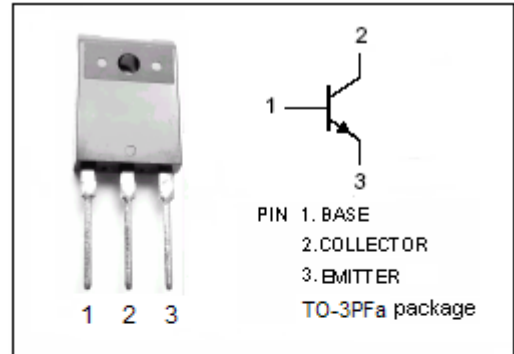
- Collector-Emitter Breakdown Voltage-  
:  $V_{(BR)CEO} = 80V(\text{Min})$
- Good Linearity of  $h_{FE}$
- Low Collector Saturation Voltage-  
:  $V_{CE(sat)} = 0.5V(\text{Max.}) @ I_C = 7A$
- Complement to Type 2SB1155

**APPLICATIONS**

- Designed for power switching applications

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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector-Base Voltage	130	V
$V_{CEO}$	Collector-Emitter Voltage	80	V
$V_{EBO}$	Emitter-Base Voltage	7	V
$I_C$	Collector Current-Continuous	15	A
$I_{CP}$	Collector Current-Pulse	25	A
$P_C$	Collector Power Dissipation @ $T_C=25^\circ\text{C}$	80	W
	Collector Power Dissipation @ $T_a=25^\circ\text{C}$	3	
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{stg}$	Storage Temperature Range	-55~150	$^\circ\text{C}$



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## ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	$I_C=10\text{mA}; I_B=0$	80			V
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage	$I_C=7\text{A}; I_B=0.35\text{A}$			0.5	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	$I_C=15\text{A}; I_B=1.5\text{A}$			1.5	V
$V_{BE(sat)-1}$	Base -Emitter Saturation Voltage	$I_C=7\text{A}; I_B=0.35\text{A}$			1.5	V
$V_{BE(sat)-2}$	Base -Emitter Saturation Voltage	$I_C=15\text{A}; I_B=1.5\text{A}$			2.5	V
$I_{CBO}$	Collector Cutoff Current	$V_{CB}=100\text{V}; I_E=0$			10	$\mu\text{A}$
$I_{EBO}$	Emitter Cutoff Current	$V_{EB}=5\text{V}; I_C=0$			50	$\mu\text{A}$
$h_{FE-1}$	DC Current Gain	$I_C=0.1\text{A}; V_{CE}=2\text{V}$	45			
$h_{FE-2}$	DC Current Gain	$I_C=3\text{A}; V_{CE}=2\text{V}$	60		260	
$h_{FE-3}$	DC Current Gain	$I_C=8\text{A}; V_{CE}=2\text{V}$	30			
$f_T$	Current-Gain—Bandwidth Product	$I_C=0.5\text{A}; V_{CE}=10\text{V}$		20		MHz

## Switching Times

$t_{on}$	Turn-on Time	$I_C=7\text{A}, I_{B1}=-I_{B2}=0.7\text{A}$		0.5		$\mu\text{s}$
$t_{stg}$	Storage Time			2.0		$\mu\text{s}$
$t_f$	Fall Time			0.2		$\mu\text{s}$

◆  $h_{FE-2}$  Classifications

R	Q	P
60-120	90-180	130-260