

isc Silicon NPN Darlington Power Transistor
2SD1890
DESCRIPTION

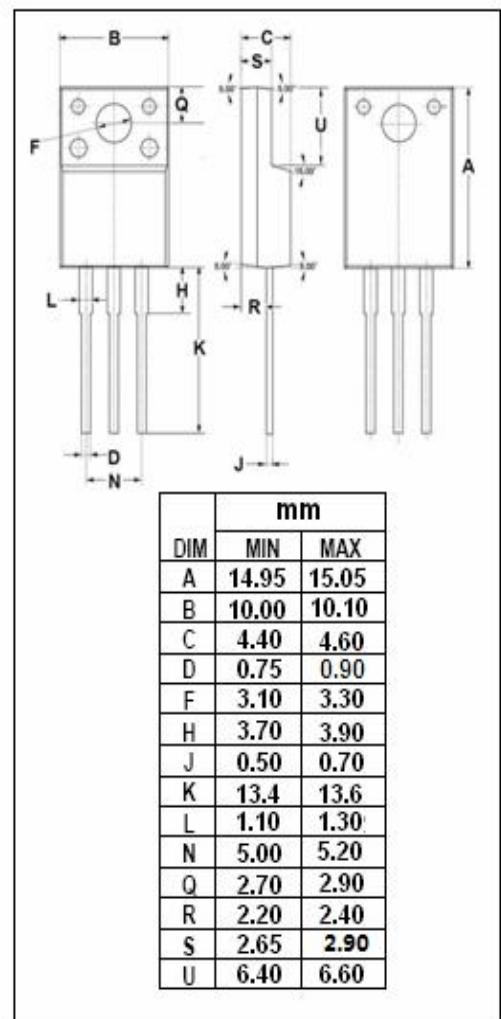
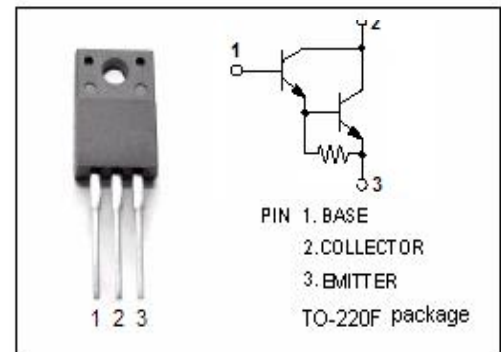
- Collector-Emitter Breakdown Voltage-
: $V_{(BR)CEO} = 80V(\text{Min})$
- High DC Current Gain
: $h_{FE} = 5000(\text{Min}) @ I_C = 2A$
- Low Collector Saturation Voltage-
: $V_{CE(sat)} = 2.5V(\text{Max.}) @ I_C = 2A$
- Complement to Type 2SB1250
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

APPLICATIONS

- For power amplification

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	100	V
V_{CEO}	Collector-Emitter Voltage	80	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current-Continuous	3	A
I_{CP}	Collector Current-Peak	6	A
P_C	Collector Power Dissipation @ $T_a = 25^\circ\text{C}$	2	W
	Collector Power Dissipation @ $T_c = 25^\circ\text{C}$	35	
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	$I_C=30\text{mA}; I_B=0$	80			V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C=1\text{mA}; I_E=0$	100			V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=2\text{A}; I_B=2\text{mA}$			2.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=2\text{A}; I_B=2\text{mA}$			3.0	V
I_{CBO}	Collector Cutoff Current	$V_{CB}=100\text{V}; I_E=0$			100	μA
I_{CEO}	Collector Cutoff current	$V_{CE}=80\text{V}; I_B=0$			100	μA
I_{EBO}	Emitter Cutoff Current	$V_{EB}=5\text{V}; I_C=0$			3.0	mA
h_{FE-1}	DC Current Gain	$I_C=1\text{A}; V_{CE}=5\text{V}$	2000			
h_{FE-2}	DC Current Gain	$I_C=2\text{A}; V_{CE}=5\text{V}$	5000		30000	
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	$I_C=2\text{A}; I_{B1}=I_{B2}=2\text{mA}$		3.5		μs
t_{stg}	Storage Time			2.5		μs
t_f	Fall Time			0.6		μs

◆ h_{FE-2} Classifications

Q	P
5000-15000	8000-30000

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