

isc Silicon NPN Darlington Power Transistor
2SD2051
DESCRIPTION

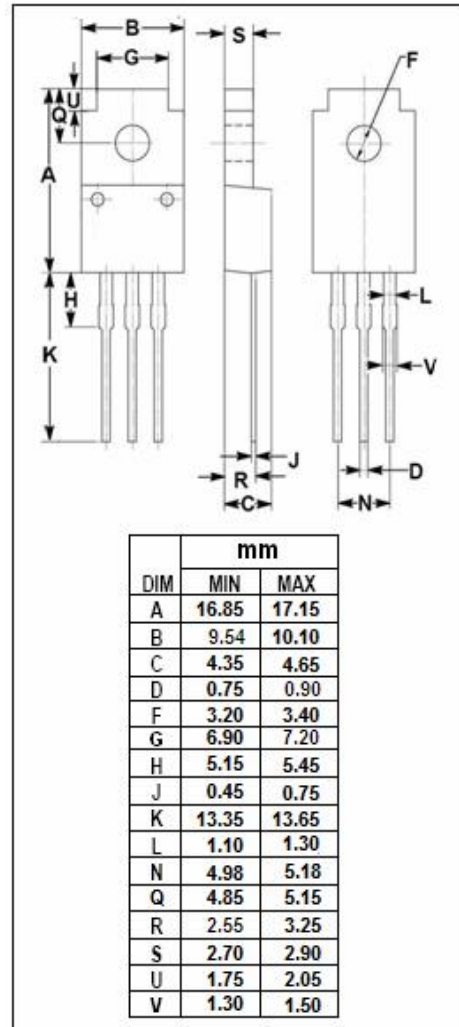
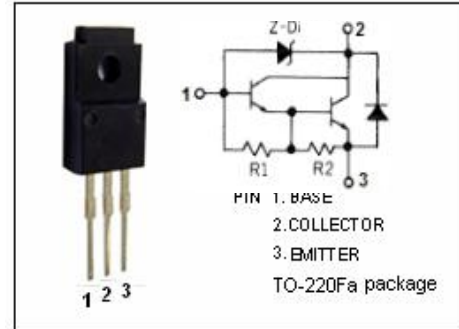
- High DC Current Gain
: $h_{FE} = 4000(\text{Min}) @ I_C = 1\text{A}$
- Low Collector Saturation Voltage
: $V_{CE(\text{sat})} = 1.5\text{V}(\text{Max.}) @ I_C = 1\text{A}$
- Incorporating a built-in zener diode
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

APPLICATIONS

- For low-frequency amplification

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	50-70	V
V_{CEO}	Collector-Emitter Voltage	50-70	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current-Continuous	1.6	A
I_{CP}	Collector Current-Peak	2.5	A
P_C	Collector Power Dissipation @ $T_a = 25^\circ\text{C}$	2.0	W
	Collector Power Dissipation @ $T_c = 25^\circ\text{C}$	12	
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	$I_C=1\text{mA}; I_B=0$	50		70	V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C=0.1\text{mA}; I_E=0$	50		70	V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E=3\text{mA}; I_C=0$	5			V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=1\text{A}; I_B=1\text{mA}$			1.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=1\text{A}; I_B=1\text{mA}$			2.2	V
I_{CBO}	Collector Cutoff Current	$V_{CB}=25\text{V}; I_E=0$			1	μA
I_{EBO}	Emitter Cutoff Current	$V_{EB}=5\text{V}; I_C=0$			3.0	mA
h_{FE}	DC Current Gain	$I_C=1\text{A}; V_{CE}=10\text{V}$	4000		40000	
f_T	Current-Gain—Bandwidth Product	$I_C=10\text{mA}; V_{CE}=10\text{V}$	200			MHz

◆ h_{FE} Classifications

Q	R	S
4000-10000	8000-20000	16000-40000

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