

isc Silicon NPN Darlington Power Transistor
2SD1223
DESCRIPTION

- High DC Current Gain-
: $h_{FE} = 2000(\text{Min})@ I_C = 4\text{A}$
- Collector-Emitter Sustaining Voltage-
: $V_{CEO(\text{SUS})} = 80\text{V}(\text{Min})$
- Low Collector-Emitter Saturation Voltage-
: $V_{CE(\text{sat})} = 1.5\text{V}(\text{Max})@ I_C = 3\text{A}$
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

APPLICATIONS

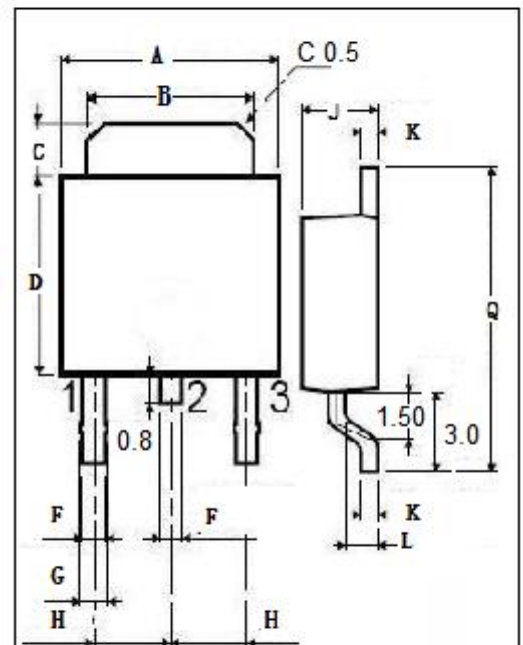
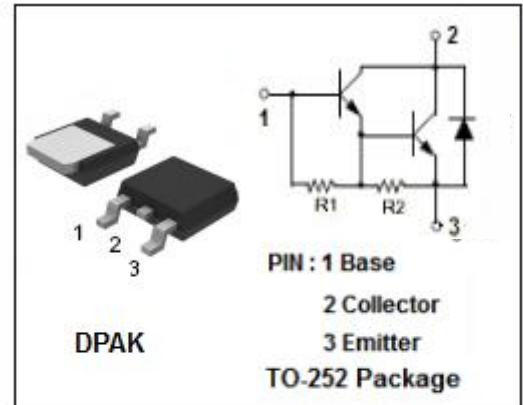
- Designed for general-purpose amplifier and low-speed switching applications

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	4	A
I_B	Base Current	0.4	A
P_C	Collector Power Dissipation $T_c=25^\circ\text{C}$	15	W
	Collector Power Dissipation $T_a=25^\circ\text{C}$	1	
T_j	Junction Temperature	150	$^\circ\text{C}$
T_{stg}	Storage Temperature Range	-55~150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{\text{th}j-c}$	Thermal Resistance, Junction to Case	8.33	$^\circ\text{C}/\text{W}$



DIM	mm	
	MIN	MAX
A	6.40	6.60
B	5.20	5.40
C	1.15	1.35
D	5.70	6.10
F	0.65	
G	0.75	
H	2.10	2.50
J	2.10	2.40
K	0.40	0.60
L	0.90	1.10
Q	9.90	10.1

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ELECTRICAL CHARACTERISTICS
 $T_c=25^\circ\text{C}$ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C=10\text{mA}, I_B=0$	80			V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=3\text{A}, I_B=6\text{mA}$			1.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=3\text{A}, I_B=6\text{mA}$			2	V
I_{CBO}	Collector Cutoff Current	$V_{CB}=100\text{V}, I_E=0$			20	μA
I_{EBO}	Emitter Cutoff Current	$V_{EB}=5\text{V}, I_C=0$			2.5	mA
h_{FE-1}	DC Current Gain	$I_C=1\text{A}; V_{CE}=2\text{V}$	2000			
h_{FE-2}	DC Current Gain	$I_C=3.0\text{A}; V_{CE}=2\text{V}$	1000			

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