

isc Silicon NPN Darlington Power Transistor

2SD689

DESCRIPTION

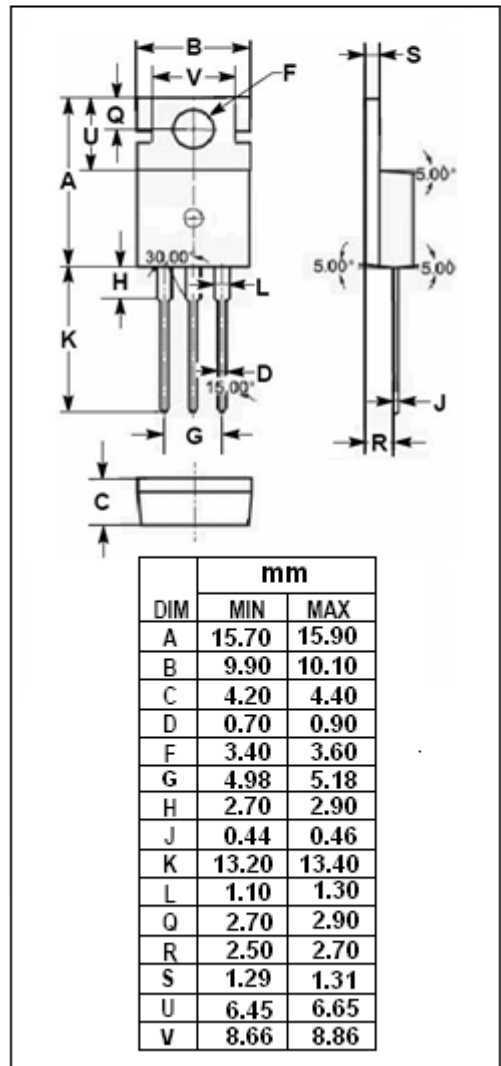
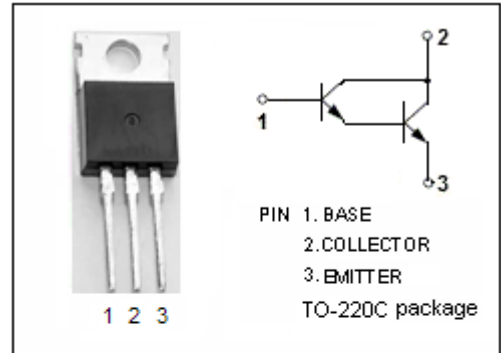
- High DC Current Gain-
: $h_{FE} = 1000(\text{Min})@ I_C = 1\text{A}$
- Collector-Emitter Sustaining Voltage-
: $V_{CEO(\text{SUS})} = 100\text{V}(\text{Min})$
- Low Collector-Emitter Saturation Voltage-
: $V_{CE(\text{sat})} = 1.5\text{V}(\text{Max})@ I_C = 1\text{A}$
- Complement to Type 2SB679

APPLICATIONS

- Low frequency medium power amplifier and medium speed switching applications.
- Pulse motor driver, relay drive and hammer drive 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	100	V
V_{EBO}	Emitter-Base Voltage	10	V
I_C	Collector Current-Continuous	1.5	A
P_C	Collector Power Dissipation $T_C = 25^\circ\text{C}$	10	W
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	$I_C=10\text{mA}; I_B=0$	100			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E=5\text{mA}; I_C=0$	10			V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=1\text{A}, I_B=2\text{mA}$			1.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=1\text{A}, I_B=2\text{mA}$			2.5	V
I_{CBO}	Collector Cutoff Current	$V_{CB}=100\text{V}, I_E=0$			10	μA
I_{EBO}	Emitter Cutoff Current	$V_{EB}=10\text{V}; I_C=0$			10	μA
h_{FE-1}	DC Current Gain	$I_C=0.1\text{A}; V_{CE}=2\text{V}$	2000			
h_{FE-2}	DC Current Gain	$I_C=1\text{A}; V_{CE}=2\text{V}$	1000			

Switching Times

t_{on}	Turn-On Time	$I_{B1}=-I_{B2}=2\text{mA}; V_{CC}=30\text{V}$ $R_L=30\Omega; P_W=20\mu\text{s};$ Duty Cycle $\leq 1\%$		0.3		μs
t_s	Storage Time			2.0		μs
t_f	Fall Time			0.7		μs