

isc Silicon NPN Darlington Power Transistor
2SD687
DESCRIPTION

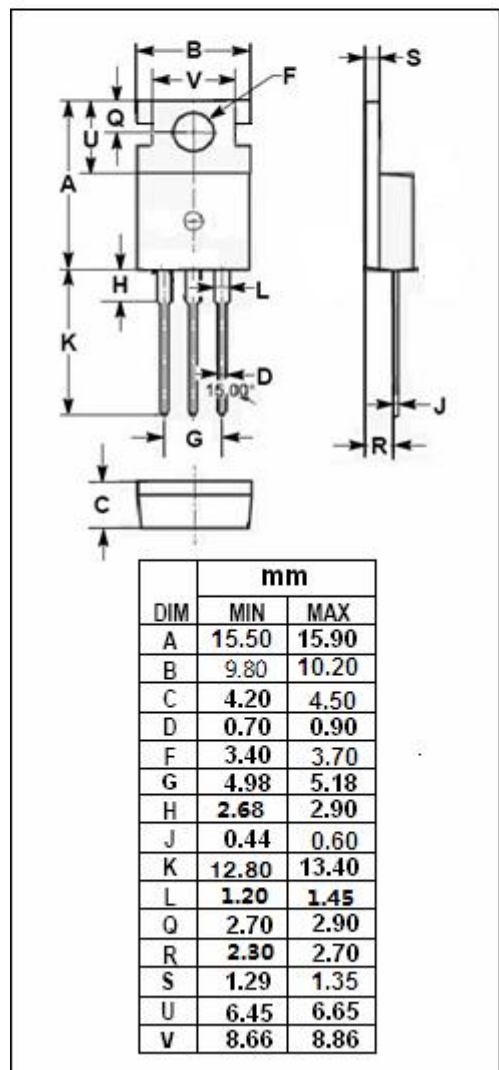
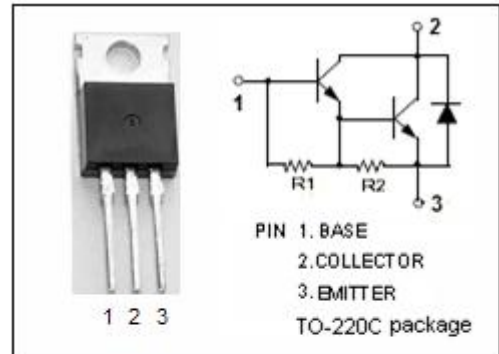
- High DC Current Gain-
: $h_{FE} = 2000(\text{Min}) @ I_C = 1\text{A}$
- Collector-Emitter Breakdown Voltage-
: $V_{(BR)CEO} = 40\text{V}(\text{Min})$
- Low Collector-Emitter Saturation Voltage-
: $V_{CE(\text{sat})} = 1.5\text{V}(\text{Max}) @ I_C = 2\text{A}$
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

APPLICATIONS

- Switching applications.
- Hammer drive, pulse motor drive applications.
- Power amplifier applications.

ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	60	V
V_{CEO}	Collector-Emitter Voltage	40	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current-Continuous	3	A
P_C	Collector Power Dissipation $T_C = 25^\circ\text{C}$	25	W
T_j	Junction Temperature	150	°C
T_{stg}	Storage Temperature Range	-55~150	°C



isc Silicon NPN Darlington Power Transistor**2SD687****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	$I_C= 30\text{mA}, I_B= 0$	40			V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C= 2\text{A}, I_B= 4\text{mA}$			1.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C= 2\text{A}, I_B= 4\text{mA}$			2.0	V
I_{CBO}	Collector Cutoff Current	$V_{CB}= 60\text{V}, I_E= 0$			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	$I_C= 3\text{A}; V_{CE}= 2\text{V}$	1000			
t_{on}	Turn-on Time	$V_{CC}= 30\text{V}; I_{B1}= I_{B2}= 6\text{mA}, R_L= 10\Omega$		0.1		μs
t_{stg}	Storage Time			1.0		μs
t_f	Fall Time			0.2		μs

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