

isc Silicon NPN Darlington Power Transistor

2SD1416

DESCRIPTION

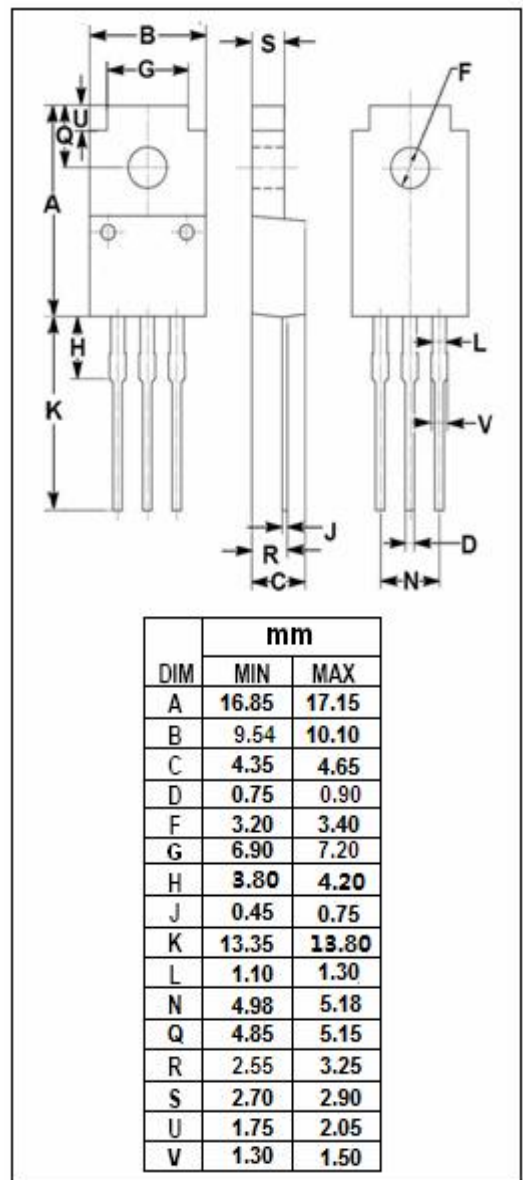
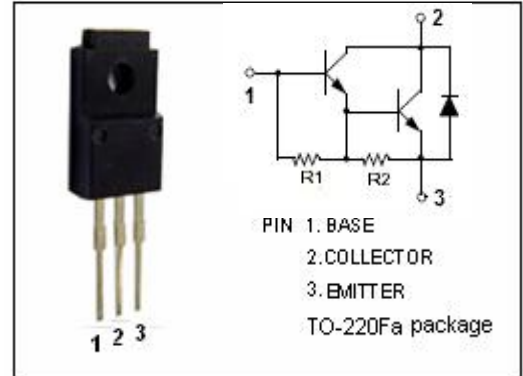
- Collector-Emitter Breakdown Voltage-
: $V_{(BR)CEO} = 80V(\text{Min})$
- Collector-Emitter Saturation Voltage-
: $V_{CE(sat)} = 1.5V(\text{Max}) @ I_C = 3A$
- High DC Current Gain
: $h_{FE} = 2000(\text{Min}) @ I_C = 3A, V_{CE} = 3V$
- Complement to Type 2SB1021
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

APPLICATIONS

- Hammer driver, pulse motor drive applications.
- High power switching applications.

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	80	V
V_{CEO}	Collector-Emitter Voltage	80	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current-Continuous	7	A
I_B	Base Current-Continuous	0.2	A
P_C	Collector Power Dissipation @ $T_C = 25^\circ\text{C}$	30	W
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{stg}	Storage Temperature Range	-55~150	$^\circ\text{C}$



isc Silicon NPN Darlington Power Transistor**2SD1416****ELECTRICAL CHARACTERISTICS****T_c=25°C unless otherwise specified**

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V _{(BR)CEO}	Collector-Emitter Breakdown Voltage	I _C = 30mA; I _B = 0	80			V
V _{CE(sat)-1}	Collector-Emitter Saturation Voltage	I _C = 3A; I _B = 6mA			1.5	V
V _{CE(sat)-2}	Collector-Emitter Saturation Voltage	I _C = 7A; I _B = 14mA			2.0	V
V _{BE(sat)}	Base-Emitter Saturation Voltage	I _C = 3A; I _B = 6mA			2.5	V
I _{CBO}	Collector Cutoff Current	V _{CB} = 80V; I _E = 0			100	μ A
I _{EBO}	Emitter Cutoff Current	V _{EB} = 5V; I _C = 0			3.0	mA
h _{FE-1}	DC Current Gain	I _C = 3A; V _{CE} = 3V	2000		15000	
h _{FE-2}	DC Current Gain	I _C = 7A; V _{CE} = 3V	1000			
Switching times						
t _{on}	Turn-on Time	I _{B1} = I _{B2} = 6mA R _L = 15 Ω ; V _{CC} = 45V P _W =20 μ s; Duty Cycle ≤ 1%		0.8		μ s
t _{stg}	Storage Time			3.0		μ s
t _f	Fall Time			2.5		μ s

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