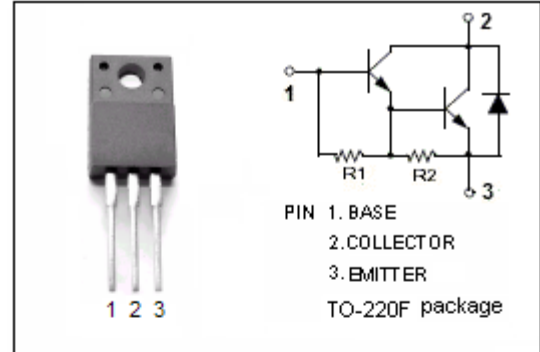


isc Silicon NPN Darlington Power Transistor

2SD1785

DESCRIPTION

- Collector-Emitter Breakdown Voltage-
: $V_{(BR)CEO} = 120V(\text{Min})$
- Collector-Emitter Saturation Voltage-
: $V_{CE(sat)} = 1.5V(\text{Max}) @ I_C = 2A$
- High DC Current Gain
: $h_{FE} = 2000(\text{Min}) @ I_C = 3A, V_{CE} = 2V$
- Complement to Type 2SB1258

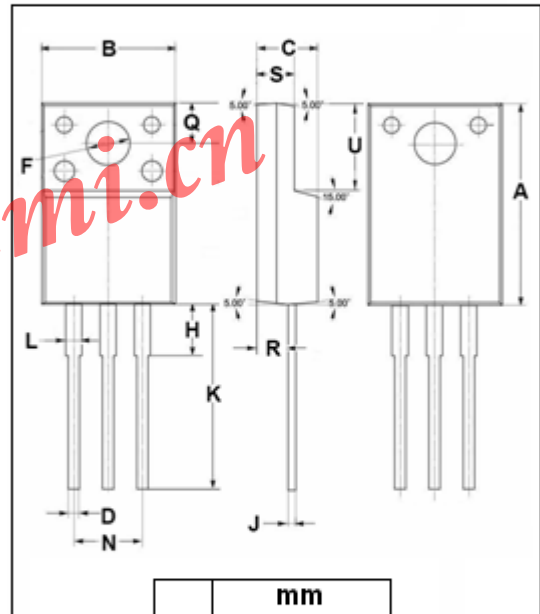


APPLICATIONS

- Driver for solenoid, relay and motor, series regulator, and general purpose applications.

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	120	V
V_{CEO}	Collector-Emitter Voltage	120	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current-Continuous	6	A
I_{CM}	Collector Current-Peak	10	A
I_B	Base Current-Continuous	1	A
P_C	Collector Power Dissipation @ $T_C=25^\circ C$	30	W
T_J	Junction Temperature	150	$^\circ C$
T_{stg}	Storage Temperature Range	-55~150	$^\circ C$



DIM	mm	
	MIN	MAX
A	14.95	15.05
B	10.00	10.10
C	4.40	4.60
D	0.75	0.80
F	3.10	3.30
H	3.70	3.90
J	0.50	0.70
K	13.4	13.6
L	1.10	1.30
N	5.00	5.20
Q	2.70	2.90
R	2.20	2.40
S	2.65	2.85
U	6.40	6.60

isc Silicon NPN Darlington Power Transistor

2SD1785

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	$I_C=10\text{mA}; I_B=0$	120			V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=2\text{A}; I_B=3\text{mA}$			1.5	V
I_{CBO}	Collector Cutoff Current	$V_{CB}=120\text{V}; I_E=0$			10	μA
I_{EBO}	Emitter Cutoff Current	$V_{EB}=6\text{V}; I_C=0$			10	mA
h_{FE}	DC Current Gain	$I_C=3\text{A}; V_{CE}=2\text{V}$	2000			
C_{OB}	Output Capacitance	$I_E=0; V_{CB}=10\text{V}; f_{\text{test}}=1.0\text{MHz}$		70		pF
f_T	Current-Gain—Bandwidth Product	$I_E=0.1\text{A}; V_{CE}=12\text{V}$		100		MHz

Switching times

t_{on}	Turn-on Time	$I_C=3\text{A}; I_{B1}=-I_{B2}=3\text{mA}; V_{CC}=30\text{V}; R_L=10\Omega$		0.5		μs
t_{stg}	Storage Time			5.5		μs
t_f	Fall Time			1.5		μs