

**isc Silicon NPN Darlington Power Transistor**

**2SD2083**

**DESCRIPTION**

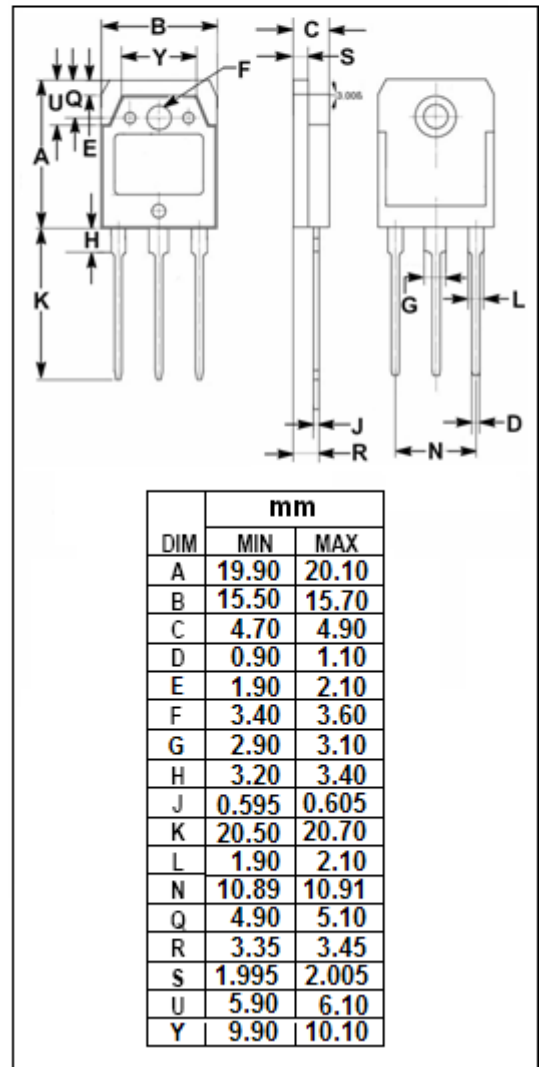
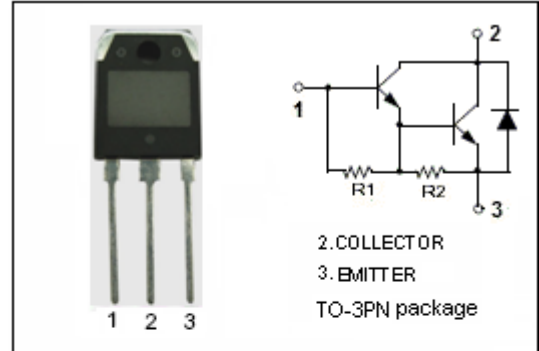
- High DC Current Gain  
:  $h_{FE} = 2000(\text{Min.}) @ I_C = 12A, V_{CE} = 4V$
- High Collector-Emitter Breakdown Voltage-  
:  $V_{(BR)CEO} = 120V(\text{Min})$
- Complement to Type 2SB1383

**APPLICATIONS**

- Designed for driver of solenoid, motor and general purpose applications.

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

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	25	A
$I_{CM}$	Collector Current-Peak	40	A
$I_B$	Base Current- Continuous	2	A
$P_C$	Collector Power Dissipation @ $T_C = 25^\circ\text{C}$	120	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****2SD2083****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	$I_C=25\text{mA}, I_B=0$	120			V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=12\text{A}, I_B=24\text{mA}$			1.8	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=12\text{A}, I_B=24\text{mA}$			2.5	V
$I_{CBO}$	Collector Cutoff current	$V_{CB}=120\text{V}, I_E=0$			10	$\mu\text{A}$
$I_{EBO}$	Emitter Cutoff current	$V_{EB}=6\text{V}, I_C=0$			10	mA
$h_{FE}$	DC Current Gain	$I_C=12\text{A}; V_{CE}=4\text{V}$	2000			
$C_{OB}$	Output Capacitance	$I_E=0; V_{CB}=10\text{V}; f_{test}=1\text{MHz}$		340		pF
$f_T$	Current-Gain—Bandwidth Product	$I_E=-1\text{A}; V_{CE}=12\text{V}$		20		MHz

## Switching Times

$t_{on}$	Turn-On Time	$I_C=12\text{A}, I_{B1}=-I_{B2}=24\text{mA}; V_{CC}=24\text{V}, R_L=2\Omega$		1.0		$\mu\text{s}$
$t_{stg}$	Storage Time			6.0		$\mu\text{s}$
$t_f$	Fall Time			1.0		$\mu\text{s}$