

**isc Silicon NPN Darlington Power Transistor**

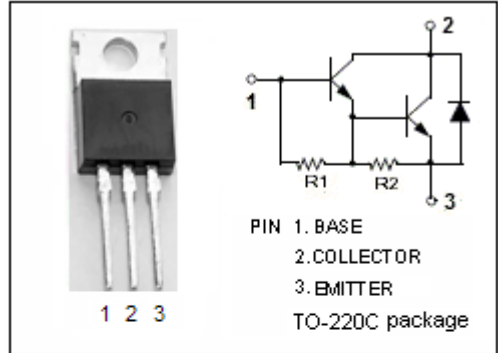
**2SD1191**

**DESCRIPTION**

- Collector-Emitter Breakdown Voltage-  
:  $V_{(BR)CEO} = 60V(\text{Min})$
- High DC Current Gain  
:  $h_{FE} = 2000(\text{Min}) @ I_C = 3.5A$
- Low Saturation Voltage
- Complement to Type 2SB881

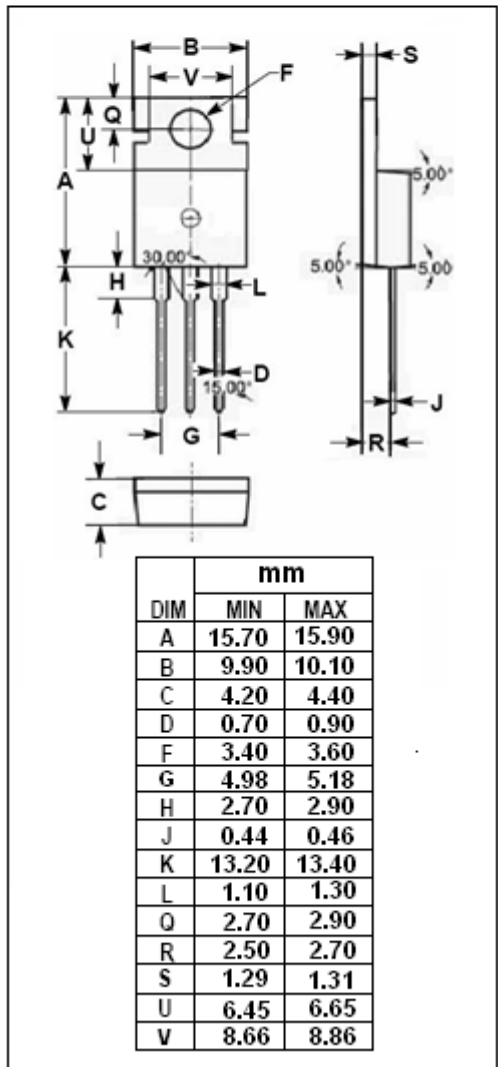
**APPLICATIONS**

- Designed for motor drivers, printer hammer drivers, relay drivers, voltage regulator applications



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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector-Base Voltage	70	V
$V_{CEO}$	Collector-Emitter Voltage	60	V
$V_{EBO}$	Emitter-Base Voltage	6	V
$I_C$	Collector Current-Continuous	7	A
$I_{CP}$	Collector Current-Peak	10	A
$P_C$	Collector Power Dissipation @ $T_a=25^\circ\text{C}$	1.75	W
	Collector Power Dissipation @ $T_C=25^\circ\text{C}$	30	
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{stg}$	Storage Temperature Range	-55~150	$^\circ\text{C}$



**isc Silicon NPN Darlington Power Transistor****2SD1191****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	$I_C=50\text{mA}; R_{BE}=\infty$	60			V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C=5\text{mA}; I_E=0$	70			V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=3.5\text{A}; I_B=7\text{mA}$			1.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=3.5\text{A}; I_B=7\text{mA}$			2.0	V
$I_{CBO}$	Collector Cutoff Current	$V_{CB}=40\text{V}; I_E=0$			100	$\mu\text{A}$
$I_{EBO}$	Emitter Cutoff Current	$V_{EB}=5\text{V}; I_C=0$			3.0	mA
$h_{FE}$	DC Current Gain	$I_C=3.5\text{A}; V_{CE}=2\text{V}$	2000			
$f_T$	Current-Gain—Bandwidth Product	$I_C=3.5\text{A}; V_{CE}=5\text{V}$		20		MHz

## Switching times

$t_{on}$	Turn-on Time	$I_C=3\text{A}, I_{B1}=-I_{B2}=6\text{mA}$ $R_L=6.7\ \Omega; V_{CC}=20\text{V};$ $P_W=50\ \mu\text{s}; \text{Duty Cycle}\leq 1\%$		0.6		$\mu\text{s}$
$t_{stg}$	Storage Time			3.0		$\mu\text{s}$
$t_f$	Fall Time			1.7		$\mu\text{s}$