

SPTECH Silicon NPN Darlington Power Transistor

TIP33

DESCRIPTION

- DC Current Gain-
: $h_{FE} = 40(\text{Min}) @ I_C = 1A$
- Collector-Emitter Sustaining Voltage-
: $V_{CEO(SUS)} = 40V(\text{Min})$
- Complement to Type TIP34

APPLICATIONS

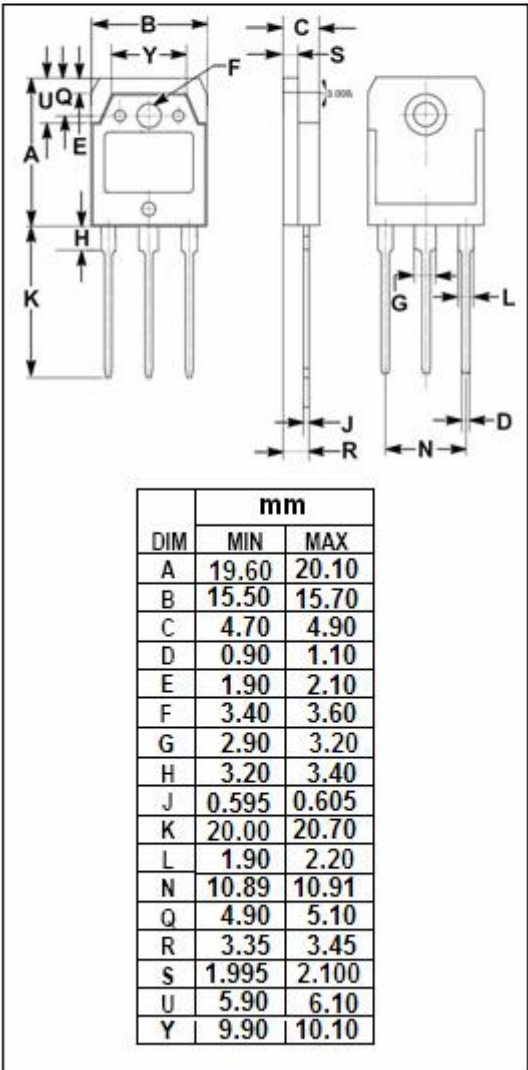
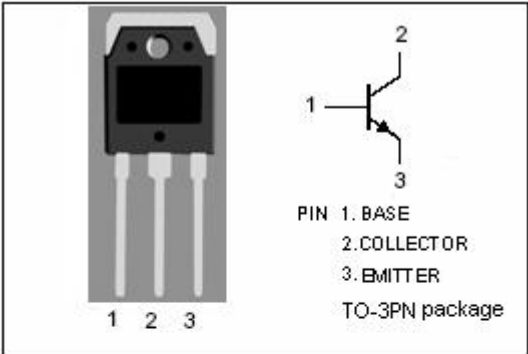
- Designed for use in general purpose power amplifier and switching applications.

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	40	V
V_{CEO}	Collector-Emitter Voltage	40	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current -Continuous	10	A
I_{CM}	Collector Current-peak	15	A
I_B	Base Current	3	A
P_C	Collector Power Dissipation@ $T_C = 25^{\circ}C$	80	W
T_j	Junction Temperature	150	$^{\circ}C$
T_{stg}	Storage Temperature	-65~150	$^{\circ}C$

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal Resistance, Junction to Case	1.56	$^{\circ}C/W$



ELECTRICAL CHARACTERISTICS $T_C=25^{\circ}\text{C}$ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C=30\text{mA}; I_B=0$	40		V
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage	$I_C=3\text{A}; I_B=0.3\text{A}$		1.0	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	$I_C=10\text{A}; I_B=2.5\text{A}$		4.0	V
$V_{BE(on)-1}$	Base-Emitter On Voltage	$I_C=3\text{A}; V_{CE}=4\text{V}$		1.6	V
$V_{BE(on)-2}$	Base-Emitter On Voltage	$I_C=10\text{A}; V_{CE}=4\text{V}$		3.0	V
I_{CEO}	Collector Cutoff Current	$V_{CE}=30\text{V}; I_B=0$		0.7	mA
I_{CES}	Collector Cutoff Current	$V_{CE}=40\text{V}; V_{EB}=0$		0.4	mA
I_{EBO}	Emitter Cutoff Current	$V_{EB}=5\text{V}; I_C=0$		1.0	mA
h_{FE-1}	DC Current Gain	$I_C=1\text{A}; V_{CE}=4\text{V}$	40		
h_{FE-2}	DC Current Gain	$I_C=3\text{A}; V_{CE}=4\text{V}$	20	100	
f_T	Current-Gain—Bandwidth Product	$I_C=0.5\text{A}; V_{CE}=10\text{V}; f_{\text{test}}=1.0\text{MHz}$	3		MHz