

SPTECH Silicon NPN Power Transistor

2N3055A

DESCRIPTION

- Excellent Safe Operating Area
- DC Current Gain- $h_{FE}=20-70@I_C = 4A$
- Collector-Emitter Saturation Voltage-
: $V_{CE(sat)}= 1.1 V(Max)@ I_C = 4A$
- Complement to Type MJ2955A

APPLICATIONS

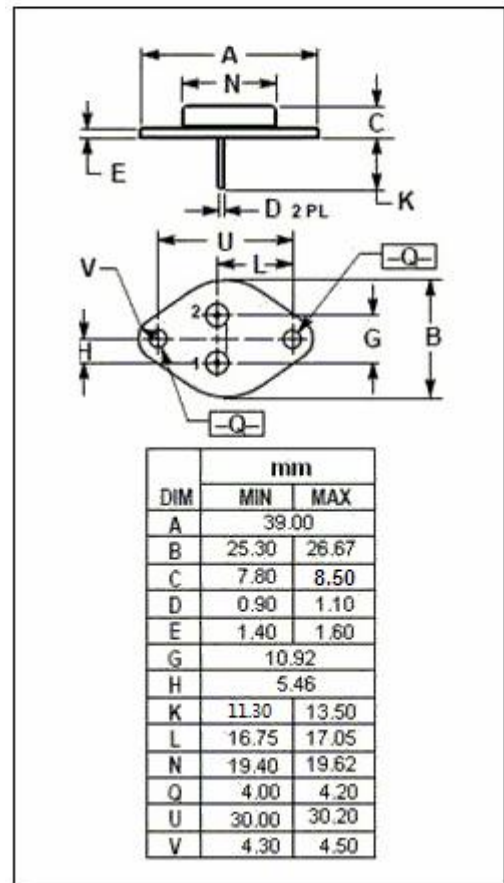
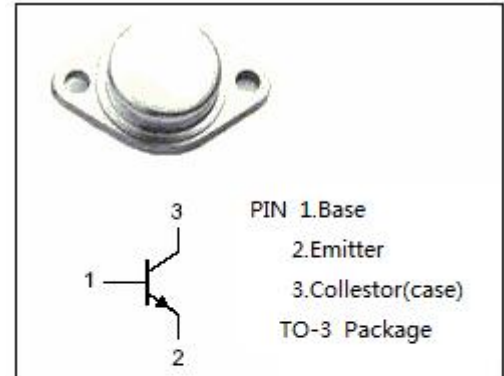
- Designed for high power audio, stepping motor and other linear applications. It can also be used in power switching circuits such as relay or solenoid drivers, DC-DC converters, inverters, or for inductive loads.

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	100	V
V_{CEV}	Collector-Emitter Voltage	100	V
V_{CEO}	Collector-Emitter Voltage	60	V
V_{EBO}	Emitter-Base Voltage	7	V
I_C	Collector Current-Continuous	15	A
I_B	Base Current	7	A
P_C	Collector Power Dissipation@ $T_C=25^{\circ}C$	115	W
T_J	Junction Temperature	200	$^{\circ}C$
T_{stg}	Storage Temperature	-65~200	$^{\circ}C$

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th j-c}$	Thermal Resistance, Junction to Case	1.52	$^{\circ}C/W$



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ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
$V_{CEQ(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C=50\text{mA}$; $I_B=0$	60		V
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage	$I_C=4\text{A}$; $I_B=0.4\text{A}$		1.1	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	$I_C=10\text{A}$; $I_B=3.3\text{A}$		3.0	V
$V_{CE(sat)-3}$	Collector-Emitter Saturation Voltage	$I_C=15\text{A}$; $I_B=7\text{A}$		5.0	V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C=4\text{A}$; $V_{CE}=4\text{V}$		1.8	V
I_{CEO}	Collector Cutoff Current	$V_{CE}=30\text{V}$; $I_B=0$		0.7	mA
I_{CEX}	Collector Cutoff Current	$V_{CE}=100\text{V}$; $V_{BE(off)}=1.5\text{V}$ $V_{CE}=100\text{V}$; $V_{BE(off)}=1.5\text{V}$, $T_C=150^{\circ}\text{C}$		5.0 30	mA
I_{EBO}	Emitter Cutoff Current	$V_{EB}=7.0\text{V}$; $I_C=0$		5.0	mA
h_{FE-1}	DC Current Gain	$I_C=4\text{A}$; $V_{CE}=2\text{V}$	10	70	
h_{FE-2}	DC Current Gain	$I_C=4\text{A}$; $V_{CE}=4\text{V}$	20	70	
h_{FE-3}	DC Current Gain	$I_C=10\text{A}$; $V_{CE}=4\text{V}$	5		
$I_{S/b}$	Second Breakdown Collector Current with Base Forward Biased	$V_{CE}=60\text{V}$; $t=0.5\text{s}$, Nonrepetitive	1.95		A
C_{OB}	Output Capacitance	$I_E=0$; $V_{CB}=10\text{V}$; $f=1.0\text{MHz}$		600	pF
f_T	Current Gain-Bandwidth Product	$I_C=1\text{A}$; $V_{CE}=4\text{V}$; $f=1.0\text{MHz}$	0.8		MHz

Switching Times

t_d	Delay Time	$I_C=4\text{A}$; $V_{CC}=30\text{V}$; $I_{B1}=-I_{B2}=0.4\text{A}$, $t_p=25\mu\text{s}$; Duty Cycle $\leq 2\%$		0.5	μs
t_r	Rise Time			4.0	μs
t_{stg}	Storage Time			3.0	μs
t_f	Fall Time			6.0	μs