

**isc 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**

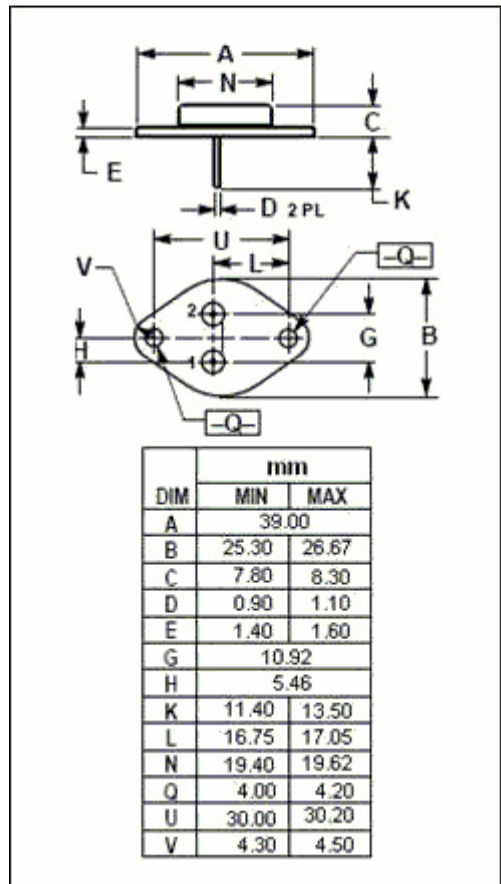
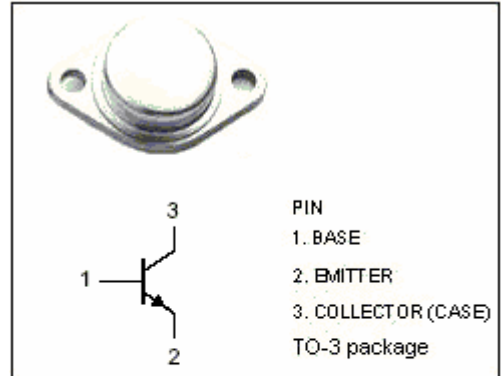
- Designed for high power audio, stepping motor and other linear applications. It can also be used in power switching circuits such as relay or solenoid drivers,DC-DC converters, inverters, or for inductive loads.

**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	$^{\circ}C/W$



## isc Silicon NPN Power Transistors

## 2N3055A

## ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
$V_{CE(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C=200\text{mA}$ ; $I_B=0$	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	$\mu\text{s}$
$t_r$	Rise Time			4.0	$\mu\text{s}$
$t_{stg}$	Storage Time			3.0	$\mu\text{s}$
$t_f$	Fall Time			6.0	$\mu\text{s}$