

isc Silicon NPN Power Transistors**2N6338/6339/6340/6341****DESCRIPTION**

- Collector-Emitter Sustaining Voltage-
: $V_{CEO(SUS)} = 100V(\text{Min})$ - 2N6338
= 120V(Min)- 2N6339
= 140V(Min)- 2N6340
= 160V(Min)- 2N6341
- High Switching Speed
- Low Saturation Voltage-
: $V_{CE(sat)} = 1.0V(\text{Max}) @ I_C = 10A$

APPLICATIONS

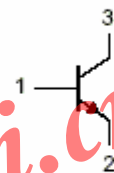
- Designed for use in industrial-military power amplifier and switching circuit applications.

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

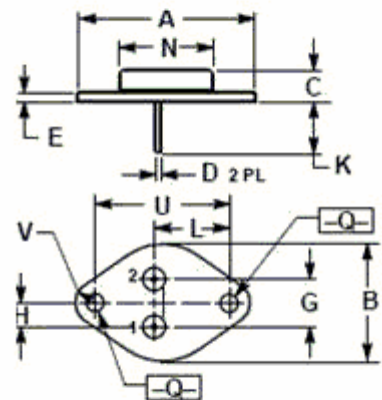
SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	2N6338	120
		2N6339	140
		2N6340	160
		2N6341	180
V_{CEO}	Collector-Emitter Voltage	2N6338	100
		2N6339	120
		2N6340	140
		2N6341	150
V_{EBO}	Emitter-Base Voltage	7	V
I_C	Collector Current-Continuous	25	A
I_{CM}	Collector Current-Peak	50	A
I_B	Base Current-Continuous	10	A
P_C	Collector Power Dissipation @ $T_C=25^\circ\text{C}$	200	W
T_J	Junction Temperature	200	$^\circ\text{C}$
T_{stg}	Storage Temperature	-65~200	$^\circ\text{C}$

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th j-c}$	Thermal Resistance, Junction to Case	0.875	$^\circ\text{C/W}$



PIN
1. BASE
2. EMITTER
3. COLLECTOR (CASE)
TO-3 package



DIM	mm	
	MIN	MAX
A		39.00
B	25.30	26.67
C	7.80	8.30
D	0.90	1.10
E	1.40	1.60
G		10.92
H		5.46
K	11.40	13.50
L	16.75	17.05
N	19.40	19.62
Q	4.00	4.20
U	30.00	30.20
V	4.30	4.50

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ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER		CONDITIONS	MIN	MAX	UNIT
$V_{CE(SUS)}$	Collector-Emitter Sustaining Voltage	2N6338	$I_C = 50\text{mA}; I_B = 0$	100		V
		2N6339		120		
		2N6340		140		
		2N6341		150		
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage		$I_C = 10\text{A}; I_B = 1\text{A}$		1.0	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage		$I_C = 25\text{A}; I_B = 2.5\text{A}$		1.8	V
$V_{BE(sat)-1}$	Base-Emitter Saturation Voltage		$I_C = 10\text{A}; I_B = 1\text{A}$		1.8	V
$V_{BE(sat)-2}$	Base-Emitter Saturation Voltage		$I_C = 25\text{A}; I_B = 2.5\text{A}$		2.5	V
$V_{BE(on)}$	Base-Emitter On Voltage		$I_C = 10\text{A}; V_{CE} = 2\text{V}$		1.8	V
I_{CEO}	Collector Cutoff Current	2N6338	$V_{CE} = 50\text{V}; I_B = 0$		50	μA
		2N6339	$V_{CE} = 60\text{V}; I_B = 0$		50	
		2N6340	$V_{CE} = 70\text{V}; I_B = 0$		50	
		2N6341	$V_{CE} = 75\text{V}; I_B = 0$		50	
I_{CBO}	Collector Cutoff Current		$V_{CB} = \text{Rated } V_{CBO}; I_E = 0$		10	μA
I_{CEX}	Collector Cutoff Current		$V_{CE} = \text{Rated } V_{CEO}; V_{BE(off)} = 1.5\text{V}$ $V_{CE} = \text{Rated } V_{CEO}; V_{BE(off)} = 1.5\text{V}, T_C = 150^{\circ}\text{C}$		10 1.0	μA mA
I_{EBO}	Emitter Cutoff Current		$V_{EB} = 6\text{V}; I_C = 0$		0.1	mA
h_{FE-1}	DC Current Gain		$I_C = 0.5\text{A}; V_{CE} = 2\text{V}$	50		
h_{FE-2}	DC Current Gain		$I_C = 10\text{A}; V_{CE} = 2\text{V}$	30	120	
h_{FE-3}	DC Current Gain		$I_C = 25\text{A}; V_{CE} = 2\text{V}$	12		
f_T	Current-Gain—Bandwidth Product		$I_C = 1\text{A}; V_{CE} = 10\text{V}; f_{test} = 10\text{MHz}$	40		MHz
C_{OB}	Output Capacitance		$I_E = 0; V_{CB} = 10\text{V}; f_{test} = 0.1\text{MHz}$		300	pF

Switching Times

t_r	Rise Time	$V_{CC} = 80\text{V}; I_C = 10\text{A}; I_{B1} = 1\text{A}, V_{BE(off)} = 6\text{V}$		0.3	μs
t_{stg}	Storage Time	$V_{CC} = 80\text{V}; I_C = 10\text{A}; I_{B1} = -I_{B2} = 1\text{A},$		1.0	μs
t_f	Fall Time			0.25	μs