

isc Silicon NPN Power Transistors

2N6338/6339/6340/6341

DESCRIPTION

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

APPLICATIONS

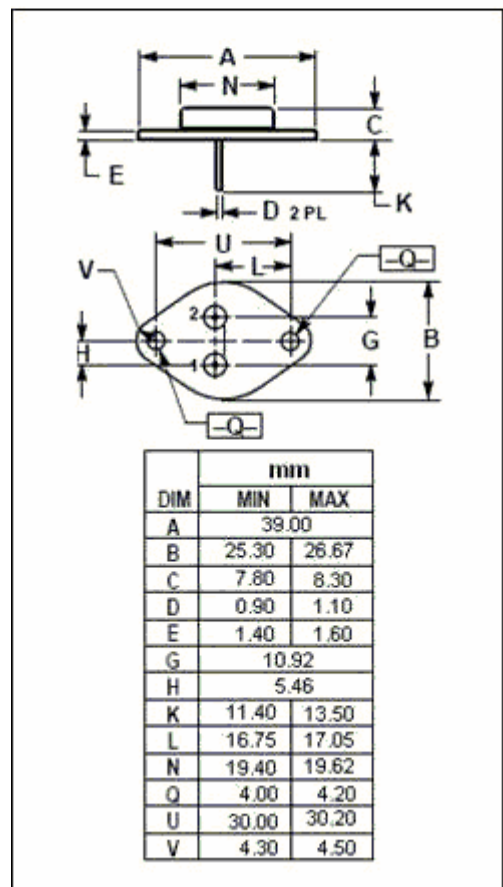
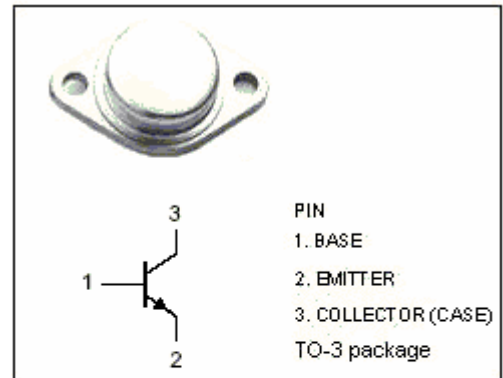
- Designed for use in industrial-military power amplifier and switching circuit applications.

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

SYMBOL	PARAMETER	VALUE	UNIT	
V_{CBO}	Collector-Base Voltage	2N6338	120	V
		2N6339	140	
		2N6340	160	
		2N6341	180	
V_{CEO}	Collector-Emitter Voltage	2N6338	100	V
		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	$^\circ\text{C/W}$



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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	$V_{CE}=\text{Rated } V_{CEO}; V_{BE(off)}=1.5\text{V}$		10	μA	
		$V_{CE}=\text{Rated } V_{CEO}; V_{BE(off)}=1.5\text{V}, T_C=150^\circ\text{C}$		1.0	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	$I_C=1\text{A}; V_{CE}=10\text{V}; f_{\text{test}}=10\text{MHz}$	40		MHz	
C_{OB}	Output Capacitance	$I_E=0; V_{CB}=10\text{V}; f_{\text{test}}=0.1\text{MHz}$		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