

New Jersey Semi-Conductor Products, Inc.

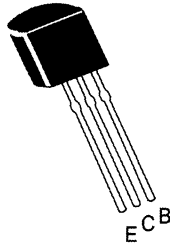
20 STERN AVE.
 SPRINGFIELD, NEW JERSEY 07081
 U.S.A.

TELEPHONE: (973) 376-2922
 (212) 227-6005
 FAX: (973) 376-8960

SILICON PLANAR EPITAXIAL TRANSISTORS

BC635, 637, 639 NPN
BC636, 638, 640 PNP

TO-92
Plastic Package



High Current Transistor

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

DESCRIPTION	SYMBOL	BC635	BC637	BC639	UNIT
		BC636	BC638	BC640	
Collector Emitter Voltage	V_{CEO}	45	60	80	V
Collector Base Voltage	V_{CBO}	45	60	80	V
Emitter Base Voltage	V_{EBO}	5.0			V
Collector Current Continuous	I_C	1.0			A
Total Device Dissipation at $T_a=25^\circ\text{C}$	P_D	800			mW
Derate Above 25°C		6.4			mW/ $^\circ\text{C}$
Total Device Dissipation at $T_a=25^\circ\text{C}$	** P_D	1.0			W
Total Device Dissipation at $T_c=25^\circ\text{C}$	P_D	2.75			W
Derate Above 25°C		22			mW/ $^\circ\text{C}$
Operating And Storage Junction Temperature Range	T_j, T_{stg}	- 55 to +150			$^\circ\text{C}$

THERMAL RESISTANCE

Junction to Case	$R_{th(j-c)}$	45	$^\circ\text{C/W}$
Junction to Ambient in free air	$R_{th(j-a)}$	156	$^\circ\text{C/W}$
Junction to Ambient	** $R_{th(j-a)}$	125	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_a=25^\circ\text{C}$ unless specified otherwise)

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	MAX	UNIT
Collector Emitter Voltage	V_{CEO}	$I_C=1\text{mA}, I_B=0$			
		BC635/BC636	45		V
		BC637/BC638	60		V
		BC639/BC640	80		V
Collector Base Voltage	V_{CBO}	$I_C=100\mu\text{A}, I_E=0$			
		BC635/BC636	45		V
		BC637/BC638	60		V
		BC639/BC640	80		V
Emitter Base Voltage	V_{EBO}	$I_E=10\mu\text{A}, I_C=0$	5.0		V
Collector Cut Off Current	I_{CBO}	$V_{CB}=30\text{V}, I_E=0$		0.1	μA
		$V_{CB}=30\text{V}, I_E=0, T_a=125^\circ\text{C}$		10	μA
Base Emitter (On) Voltage	* $V_{BE(on)}$	$I_C=500\text{mA}, V_{CE}=2\text{V}$		1.0	V
Collector Emitter Saturation Voltage	* $V_{CE(sat)}$	$I_C=500\text{mA}, I_B=50\text{mA}$		0.5	V

*Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle 2%

**Transistors mounted on printed circuit board, max Lead Length 4mm, mounting pad for collector lead min 10mm x 10 mm

Quality Semi-Conductors

ELECTRICAL CHARACTERISTICS (T_a=25°C unless specified otherwise)

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	MAX	UNIT
DC Current Gain	*h _{FE}	V _{CE} =2V, I _C =5mA	25		
		V _{CE} =2V, I _C =150mA			
		BC635/BC636	40	250	
		BC637/BC638	40	250	
		BC639/BC640	40	250	
		Group-10	40	160	
		Group-16	100	250	
		V _{CE} =2V, I _C =500mA	25		

DYNAMIC CHARACTERISTICS

DESCRIPTION	SYMBOL	TEST CONDITION	TYP	UNIT	
Transistors Frequency	f _T	I _C =50mA, V _{CE} =2V, f=100MHz			
			NPN	200	MHz
			PNP	150	MHz
Output Capacitance	C _{ob}	I _E =0, V _{CB} =10V, f=1MHz			
			NPN	7	pF
			PNP	9	pF
Input Capacitance	C _{ib}	V _{BE} =0.5V, f=1MHz			
			NPN	50	pF
			PNP	110	pF

*Pulse Test: Pulse Width ≤ 300μs, Duty Cycle 2%