

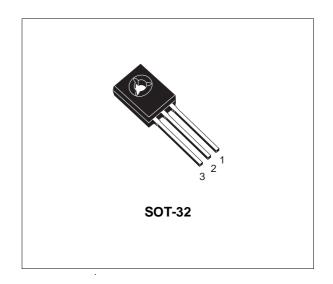
COMPLEMENTARY SILICON POWER TRANSISTORS

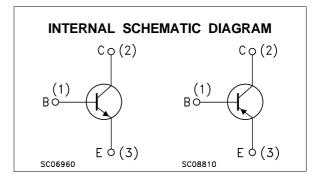
- STMicroelectronics PREFERRED **SALESTYPES**
- COMPLEMENTARY PNP NPN DEVICES

DESCRIPTION

The BD439 and BD441 are silicon epitaxial-base NPN power transistors in Jedec SOT-32 plastic package, intented for use in power linear and switching applications.

The complementary PNP types are BD440, and BD442 respectively.





ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		Va	Unit	
		NPN	BD439	BD441	
		PNP	BD440	BD442	
V _{CBO}	Collector-Base Voltage (I _E = 0)		60	80	V
V_{CES}	Collector-Emitter Voltage (V _{BE} = 0)		60	80	V
V _{CEO}	Collector-Emitter Voltage (I _B = 0)		60	80	V
V _{EBO}	Emitter-Base Voltage (I _C = 0)		5		V
Ic	Collector Current		4		А
I _{CM}	Collector Peak Current (t ≤ 10 ms)		7		А
lΒ	Base Current		1		Α
P _{tot}	Total Dissipation at T _c ≤ 25 °C	36		86	W
T _{stg}	Storage Temperature		-65 to 150		
Tj	Max. Operating Junction Temperature		150		

For PNP types voltage and current values are negative.

1/4 December 2000

BD439/BD440/BD441/BD442

THERMAL DATA

R _{thj-case}	Thermal Resistance Junction-case	Max	3.5	°C/W
$R_{thj-amb}$	Thermal Resistance Junction-ambient	Max	100	°C/W

ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

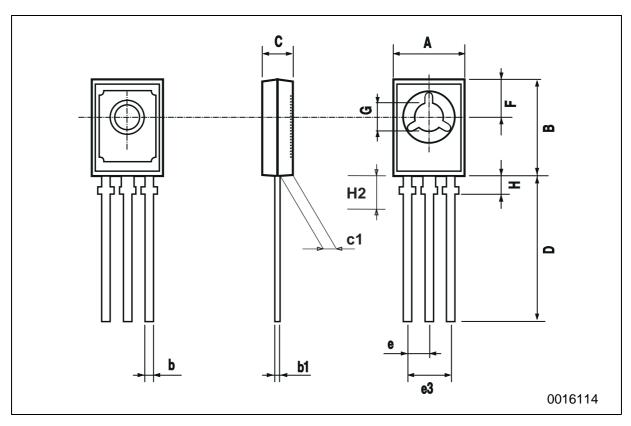
Symbol	Parameter	Test	Conditions	Min.	Тур.	Max.	Unit
Ісво	Collector Cut-off Current (I _E = 0)	for BD439/440 for BD441/442	05			100 100	μA μA
I _{CES}	Collector Cut-off Current (V _{BE} = 0)	for BD439/440 for BD441/442	.05			100 100	μA μA
I _{EBO}	Emitter Cut-off Current (Ic = 0)	V _{EB} = 5 V				1	mA
V _{CEO(sus)} *	Collector-Emitter Sustaining Voltage (I _B = 0)	I _C = 100 mA	for DB439/440 for BD441/442	60 80			V
$V_{CE(sat)^*}$	Collector-Emitter Saturation Voltage	I _C = 2 A	$I_B = 0.2 A$			0.8	V
V _{BE} *	Base-Emitter Voltage	I _C = 10 mA I _C = 2 A	V _{CE} = 5 V V _{CE} = 1 V		0.58	1.5	V
h _{FE} *	DC Current Gain	$I_{C} = 10 \text{ mA}$ $I_{C} = 500 \text{ mA}$	V _{CE} = 5 V for BD439/440 for BD441/442 V _{CE} = 1 V for BD439/440	20 15 40	130 130		
		I _C = 2 A	for BD441/442 V _{CE} = 1 V for BD439/440 for BD441/442	40 25 15	140		
h _{FE1} /h _{FE2} *	Matched Pair	I _C = 500 mA	V _{CE} = 1 V			1.4	
f⊤	Transition frequency	I _C = 250 mA	V _{CE} = 1 V	3			MHz

^{*} Pulsed: Pulse duration = 300 ms, duty cycle 1.5 %

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SOT-32 (TO-126) MECHANICAL DATA

DIM.	mm			inch			
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.	
Α	7.4		7.8	0.291		0.307	
В	10.5		10.8	0.413		0.445	
b	0.7		0.9	0.028		0.035	
b1	0.49		0.75	0.019		0.030	
С	2.4		2.7	0.040		0.106	
c1	1.0		1.3	0.039		0.050	
D	15.4		16.0	0.606		0.629	
е		2.2			0.087		
e3	4.15		4.65	0.163		0.183	
F		3.8			0.150		
G	3		3.2	0.118		0.126	
Н			2.54			0.100	



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