

Complementary silicon power transistors

Features

- STMicroelectronics preferred salestypes
- Complementary NPN - PNP devices

Applications

- Linear and switching industrial equipment

Description

The MJE340 is a silicon planar NPN transistor intended for use in medium power linear and switching applications. It is mounted in SOT-32.

The complementary PNP type is MJE350.

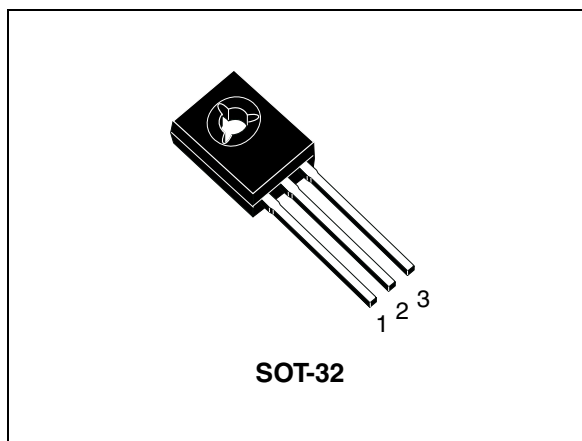


Figure 1. Internal schematic diagram

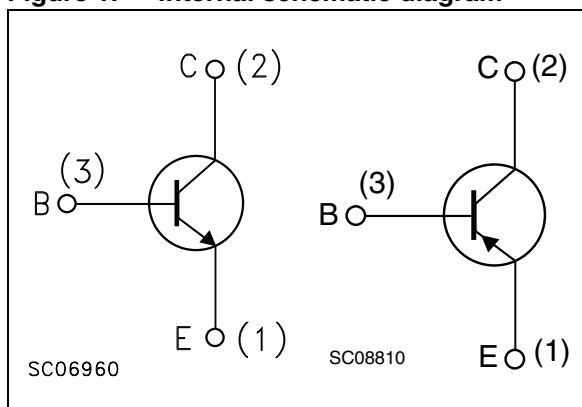


Table 1. Device summary

Order code	Marking	Polarity	Package	Packaging
MJE340	MJE340	NPN	SOT-32	Tube
MJE350	MJE350	PNP	SOT-32	Tube

1 Electrical ratings

Table 2. Absolute maximum ratings

Symbol	Parameter	Value		Unit
		MJE340 (NPN)		
		MJE350 (PNP)		
V_{CBO}	Collector-base voltage ($I_E = 0$)	300		V
V_{CEO}	Collector-emitter voltage ($I_B = 0$)	300		V
V_{EBO}	Base-emitter voltage ($I_C = 0$)	3		V
I_C	Collector current	0.5		A
P_{TOT}	Total dissipation at $T_c \leq 25$ °C	20.8		W
T_{stg}	Storage temperature	-65 to 150		°C
T_J	Max operating junction temperature	150		

Note: for PNP type voltage and current values are negative.

Table 3. Thermal data

Symbol	Parameter	Value	Unit
R_{thJC}	Thermal resistance junction-case max	6.0	°C/W

2 Electrical characteristics

$T_{\text{case}} = 25\text{ }^{\circ}\text{C}$ unless otherwise specified.

Table 4. Electrical characteristics

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector cut-off current ($I_{\text{E}} = 0$)	$V_{\text{CB}} = 300\text{ V}$			100	μA
I_{EBO}	Emitter cut-off current ($I_{\text{C}} = 0$)	$V_{\text{EB}} = 3\text{ V}$			100	μA
$V_{\text{CEO(sus)}}^{(1)}$	Collector-emitter sustaining voltage ($I_{\text{B}} = 0$)	$I_{\text{C}} = 1\text{ mA}$	300			V
$V_{\text{BE(on)}}$	Emitter-base on voltage ($I_{\text{C}} = 0$)	$I_{\text{C}} = 50\text{ mA}$ $V_{\text{CE}} = 10\text{ V}$			1	V
$V_{\text{CE(sat)}}^{(1)}$	Collector-emitter saturation voltage	$I_{\text{C}} = 100\text{ mA}$ $I_{\text{B}} = 10\text{ mA}$			0.5	V
h_{FE}	DC current gain	$I_{\text{C}} = 50\text{ mA}$ $V_{\text{CE}} = 10\text{ V}$	30		240	

1. Pulse test: pulse duration = 300 μs , duty cycle $\leq 2\%$.

Note: for PNP type voltage and current values are negative.

2.1 Electrical characteristics (curves)

Figure 2. Safe operating area

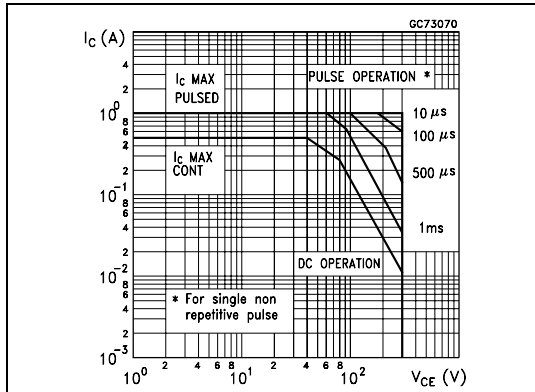


Figure 3. Derating curve

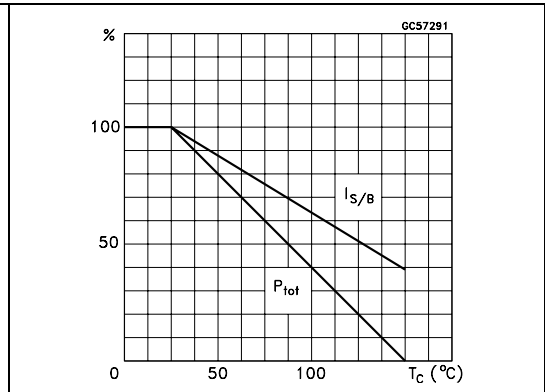


Figure 4. DC current gain (NPN type)

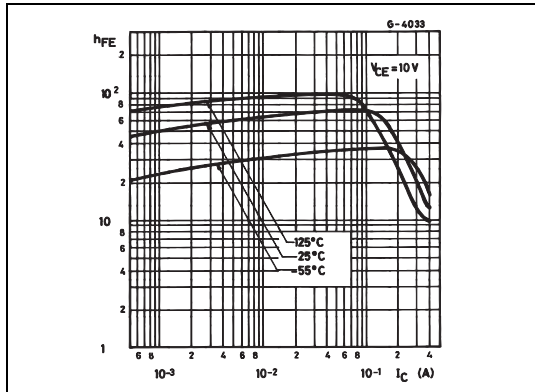


Figure 5. DC current gain (PNP type)

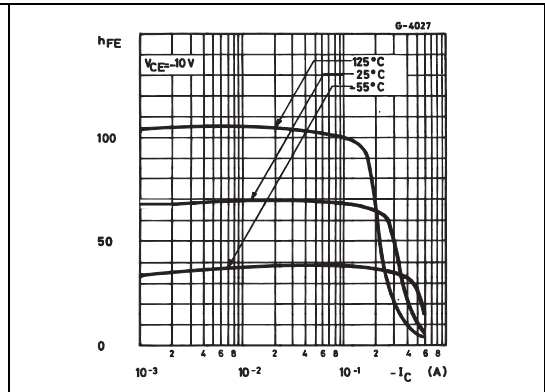


Figure 6. Collector-emitter saturation voltage (NPN type)

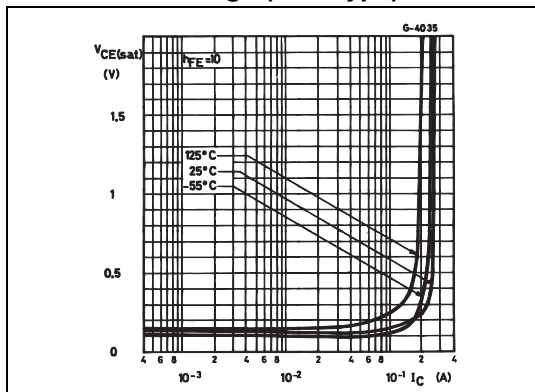
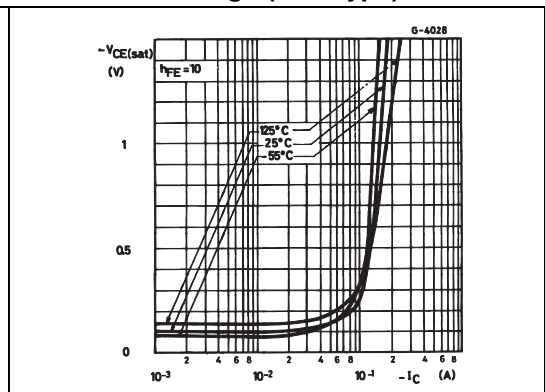


Figure 7. Base-emitter saturation voltage (PNP type)



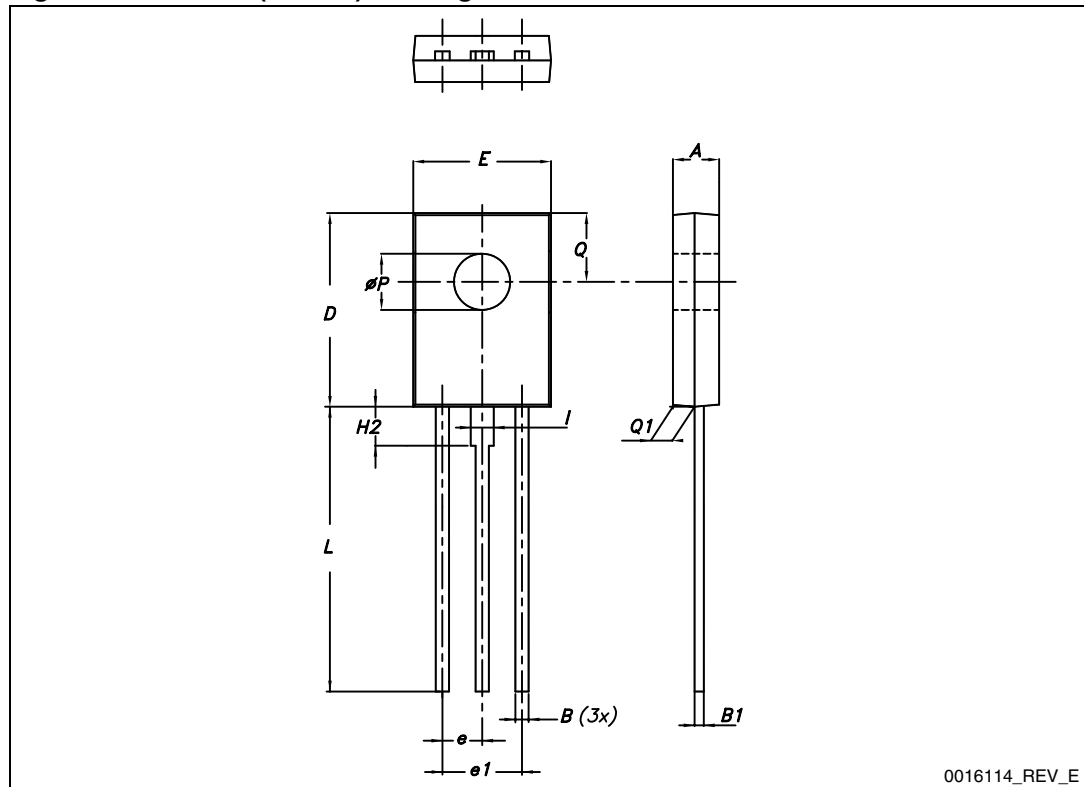
3 Package mechanical data

In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK[®] packages, depending on their level of environmental compliance. ECOPACK[®] specifications, grade definitions and product status are available at: www.st.com. ECOPACK[®] is an ST trademark.

Table 5. SOT-32 (TO-126) mechanical data

Dim.	mm.		
	Min.	Typ.	Max.
A	2.40		2.90
B	0.64		0.88
B1	0.39		0.63
D	10.50		11.05
E	7.40		7.80
e	2.04	2.29	2.54
e1	4.07	4.58	5.08
L	15.30		16
ØP	2.90		3.20
Q		3.80	
Q1	1		1.52
H2		2.15	
I		1.27	

Figure 8. SOT-32 (TO-126) drawing



0016114_REV_E

4 Revision history

Table 6. Document revision history

Date	Revision	Changes
05-Apr-2011	5	Minor text changes
10-Nov-2011	6	Added: V_{CBO} in Table 2 , $V_{CE(sat)}$ and $V_{BE(on)}$ in Table 4

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