

## Complementary silicon power transistors

### Features

- STMicroelectronics preferred salestypes
- Complementary NPN - PNP devices

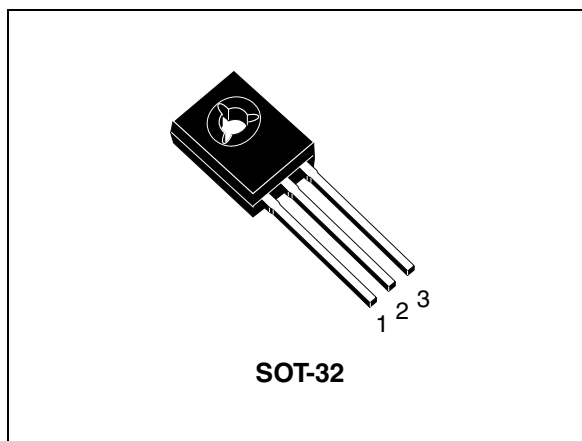
### Applications

- Linear and switching industrial equipment

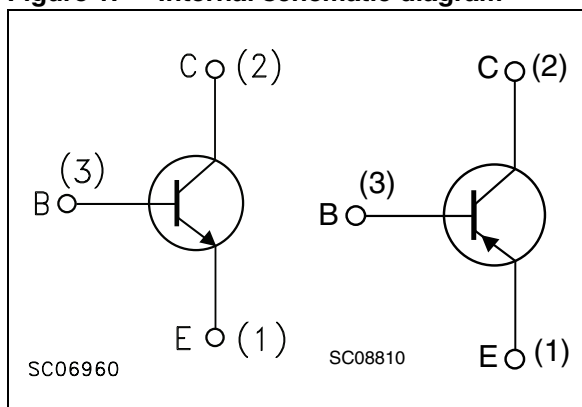
### Description

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
$I_{\text{CBO}}$	Collector cut-off current ( $I_{\text{E}} = 0$ )	$V_{\text{CB}} = 300\text{ V}$			100	$\mu\text{A}$
$I_{\text{EBO}}$	Emitter cut-off current ( $I_{\text{C}} = 0$ )	$V_{\text{EB}} = 3\text{ V}$			100	$\mu\text{A}$
$V_{\text{CEO(sus)}}^{(1)}$	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
$h_{\text{FE}}$	DC current gain	$I_{\text{C}} = 50\text{ mA}$ $V_{\text{CE}} = 10\text{ V}$	30		240	

1. Pulse test: pulse duration = 300  $\mu\text{s}$ , duty cycle  $\leq 2\%$ .

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

## 2.1 Electrical characteristics (curves)

Figure 2. Safe operating area

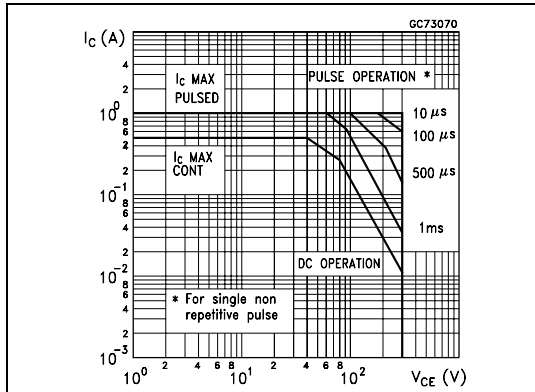


Figure 3. Derating curve

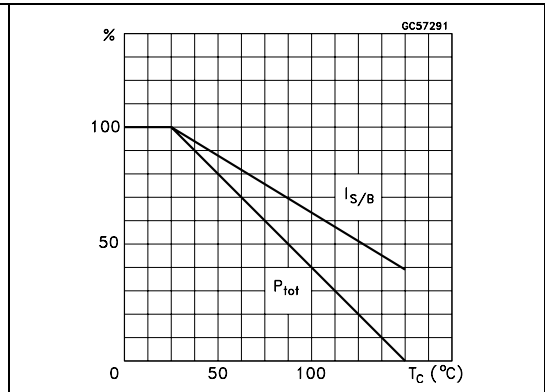


Figure 4. DC current gain (NPN type)

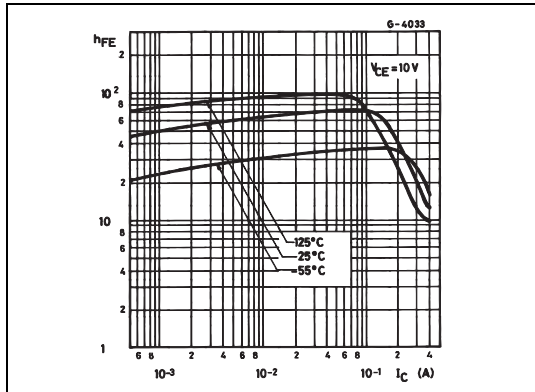


Figure 5. DC current gain (PNP type)

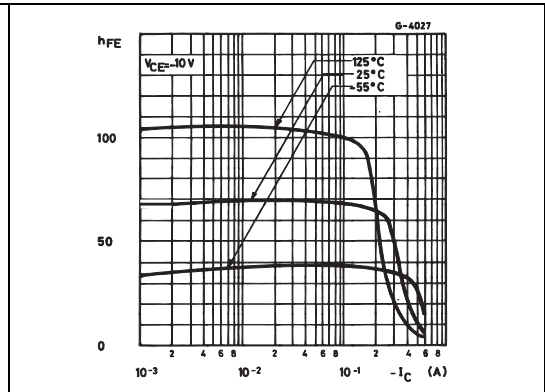


Figure 6. Collector-emitter saturation voltage (NPN type)

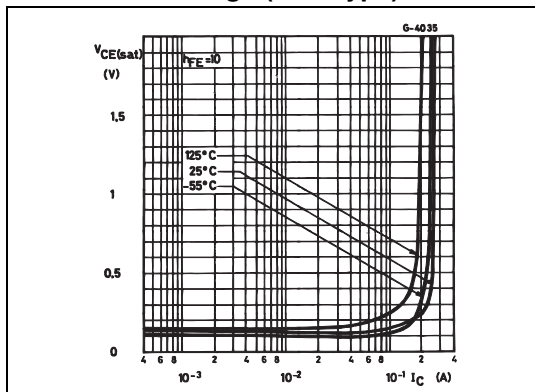
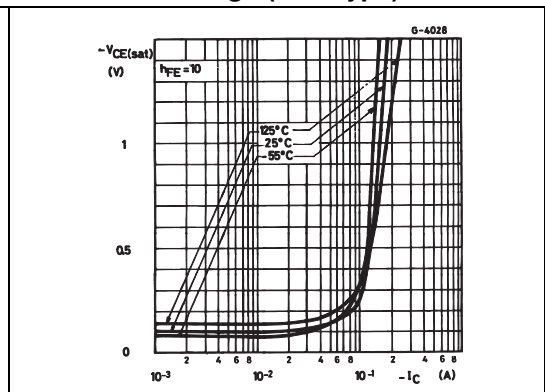


Figure 7. Base-emitter saturation voltage (PNP type)



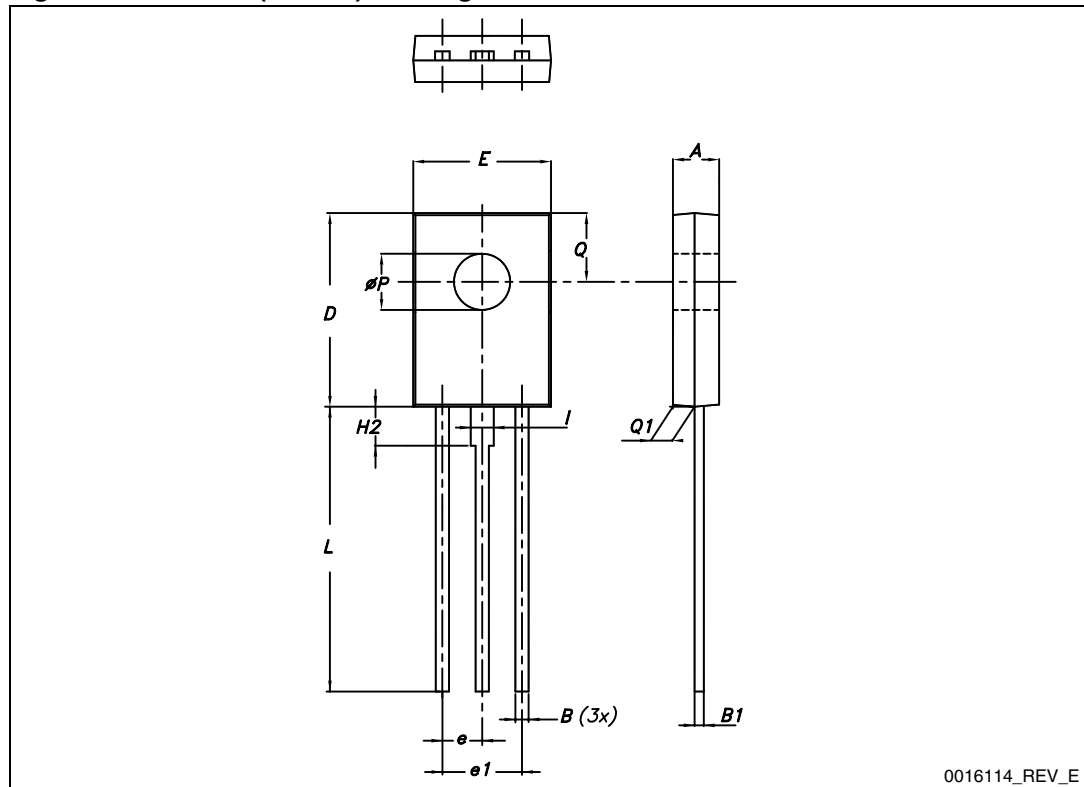
### 3 Package mechanical data

In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK<sup>®</sup> packages, depending on their level of environmental compliance. ECOPACK<sup>®</sup> specifications, grade definitions and product status are available at: [www.st.com](http://www.st.com). ECOPACK<sup>®</sup> 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



## 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 <a href="#">Table 2</a> , $V_{CE(sat)}$ and $V_{BE(on)}$ in <a href="#">Table 4</a>