



TIP33C
TIP34C

COMPLEMENTARY SILICON POWER TRANSISTORS

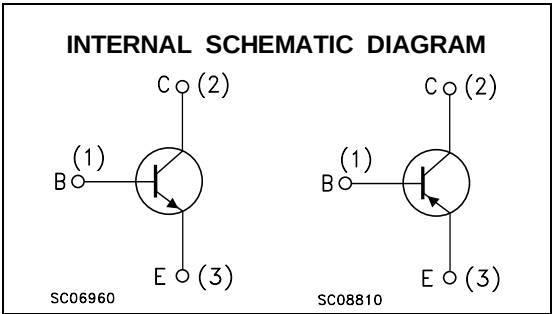
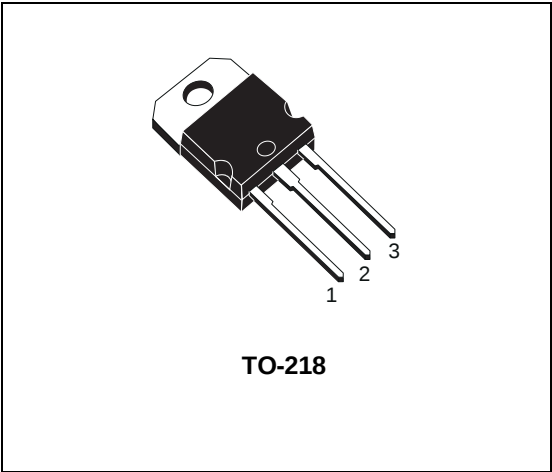
- STMicroelectronics PREFERRED SALESTYPES
- COMPLEMENTARY PNP - NPN DEVICES

APPLICATIONS

- GENERAL PURPOSE SWITCHING

DESCRIPTION

The TIP33C is a silicon Epitaxial-Base NPN power transistor mounted in TO-218 plastic package. It is intended for use in linear and switching applications.
The complementary PNP type is TIP34C.



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		Value	Unit
			TIP33C	
		NPN		
		PNP	TIP34C	
V _{CB0}	Collector-Base Voltage (I _E = 0)		140	V
V _{CES}	Collector-Emitter Voltage (V _{BE} = 0)		140	V
V _{CEO}	Collector-Emitter Voltage (I _B = 0)		100	V
V _{EBO}	Emitter-Base Voltage (I _C = 0)		7	V
I _C	Collector Current		10	A
I _{CM}	Collector Peak Current		12	A
I _B	Base Current		3	A
P _{tot}	Total Dissipation at T _c ≤ 25 °C		80	W
T _{stg}	Storage Temperature		-65 to 150	°C
T _j	Max. Operating Junction Temperature		150	°C

For PNP types voltage and current values are negative.

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THERMAL DATA

$R_{thj-case}$	Thermal Resistance Junction-case	Max	1.56	$^{\circ}C/W$
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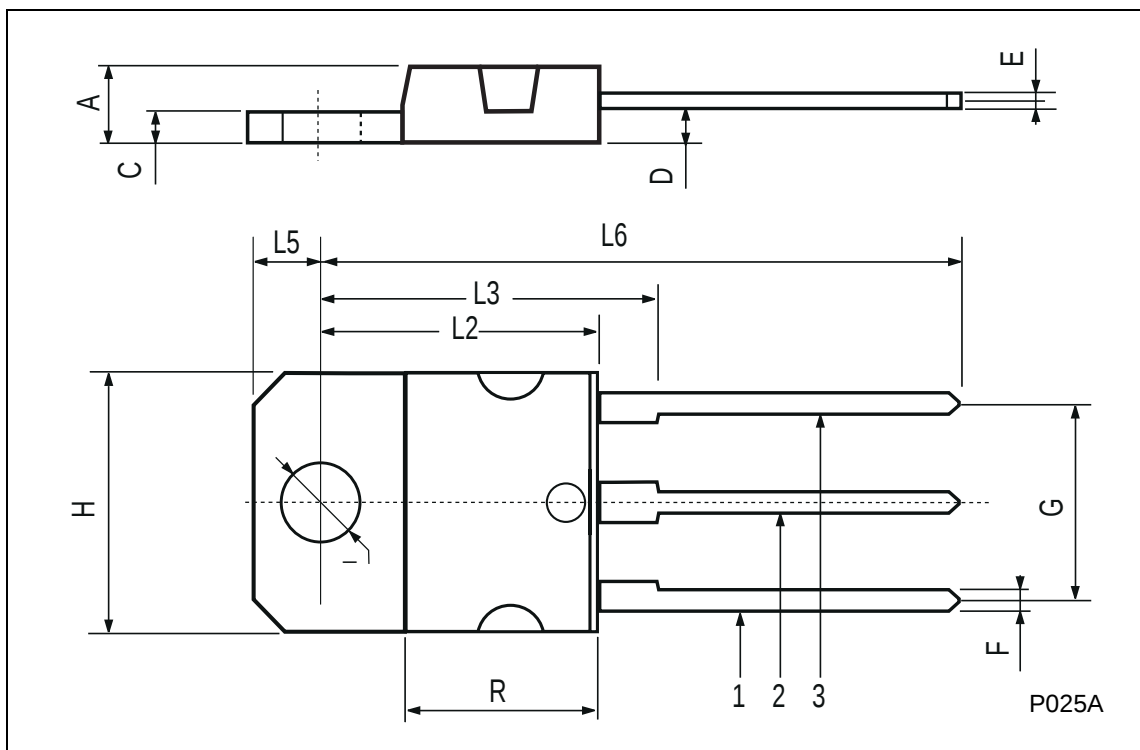
ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CES}	Collector Cut-off Current ($V_{BE} = 0$)	$V_{CE} = 140 V$			400	μA
I_{CEO}	Collector Cut-off Current ($I_B = 0$)	$V_{CE} = 60 V$			0.7	mA
I_{EBO}	Emitter Cut-off Current ($I_C = 0$)	$V_{EB} = 5 V$			1	mA
$V_{CEO(sus)}^*$	Collector-Emitter Sustaining Voltage ($I_B = 0$)	$I_C = 30 mA$	100			V
$V_{CE(sat)}^*$	Collector-Emitter Saturation Voltage	$I_C = 3 A$ $I_C = 10 A$ $I_B = 0.3 A$ $I_B = 2.5 A$			1 4	V V
$V_{BE(on)}^*$	Base-Emitter Voltage	$I_C = 3 A$ $I_C = 10 A$ $V_{CE} = 4 V$ $V_{CE} = 4 V$			1.6 3	V V
h_{FE}^*	DC Current Gain	$I_C = 1 A$ $I_C = 3 A$ $V_{CE} = 4 V$ $V_{CE} = 4 V$	40 20		100	
h_{fe}	Small Signal Current Gain	$I_C = 0.5 A$ $f = 1 KHz$ $V_{CE} = 10 V$	20			
f_T	Transition frequency	$I_C = 0.5 A$ $f = 1 MHz$ $V_{CE} = 10 V$	3			MHz
t_{on} t_s t_f	RESISTIVE LOAD Turn-on Time Storage Time Fall Time	$V_{CC} = 30V$ $V_{BB} = -6 V$ $t_p = 20 \mu s$ $I_C = 6 A$ $I_{B1} = -I_{B2} = 0.6 A$		0.6 0.4 1		μs μs μs

* Pulsed: Pulse duration = 300 μs , duty cycle 1.5 %

TO-218 (SOT-93) MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.7		4.9	0.185		0.193
C	1.17		1.37	0.046		0.054
D		2.5			0.098	
E	0.5		0.78	0.019		0.030
F	1.1		1.3	0.043		0.051
G	10.8		11.1	0.425		0.437
H	14.7		15.2	0.578		0.598
L2	–		16.2	–		0.637
L3		18			0.708	
L5	3.95		4.15	0.155		0.163
L6		31			1.220	
R	–		12.2	–		0.480
Ø	4		4.1	0.157		0.161



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