

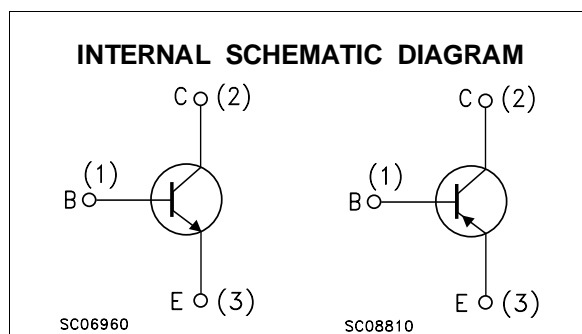
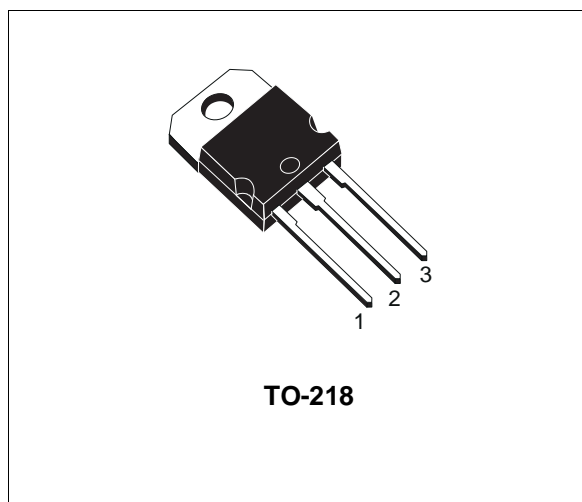
COMPLEMENTARY SILICON POWER TRANSISTORS

■ SGS-THOMSON PREFERRED SALESTYPES

DESCRIPTION

The TIP33C is a silicon epitaxial-base NPN power transistors in TO-218 plastic package, intended for use in linear and switching applications.

The complementary PNP types is TIP34C.



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value		Unit
		NPN	TIP33C	
		PNP	TIP34C	
V_{CBO}	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 $T_c \leq 25^\circ\text{C}$		80	W
T_{stg}	Storage Temperature		-65 to 150	$^\circ\text{C}$
T_j	Max. Operating Junction Temperature		150	$^\circ\text{C}$

TIP33C/TIP34C

THERMAL DATA

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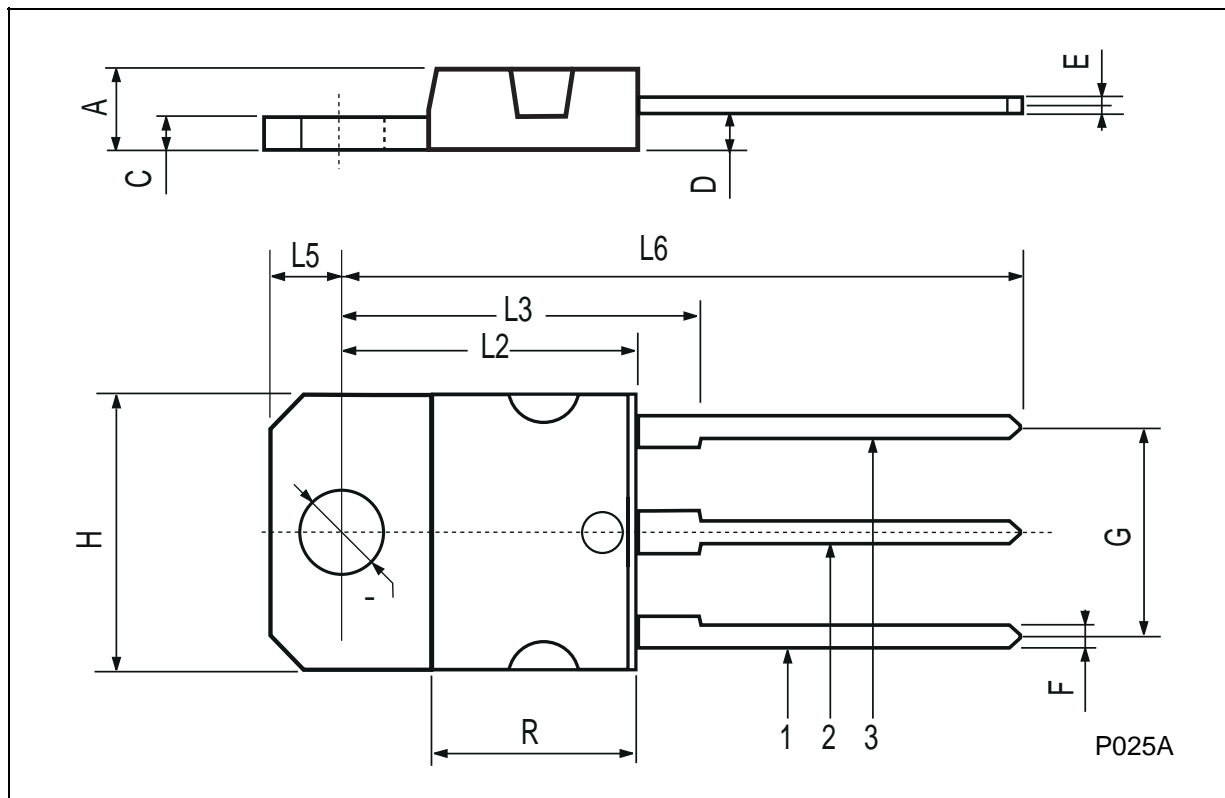
ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise specified)

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	$I_C = 30 mA$	100			V
$V_{CE(sat)*}$	Collector-Emitter Saturation Voltage	$I_C = 3 A$			1	V
		$I_C = 10 A$	$I_B = 0.3 A$		4	V
$V_{BE(on)*}$	Base-Emitter Voltage	$I_C = 3 A$	$V_{CE} = 4 V$		1.6	V
		$I_C = 10 A$	$V_{CE} = 4 V$		3	V
h_{FE*}	DC Current Gain	$I_C = 1 A$	$V_{CE} = 4 V$	40		
		$I_C = 3 A$	$V_{CE} = 4 V$	20	100	
h_{fe}	Small Signal Current Gain	$I_C = 0.5 A$ $f = 1 MHz$	$V_{CE} = 10 V$	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	$V_{CC} = 30V$	$I_C = 6 A$		0.6	μs
	Storage Time	$V_{BB} = -6 V$	$I_{B1} = -I_{B2} = 0.6 A$		0.4	μs
	Fall Time	$t_p = 20 \mu s$			1	μs

* Pulsed: Pulse duration = 300 μs , duty cycle 1.5 %
For PNP types voltage and current values are negative.

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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