



TIP33C
TIP34C

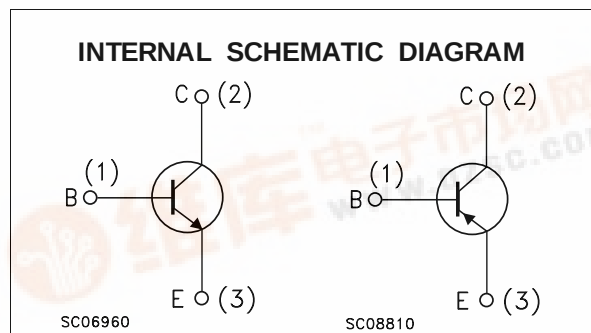
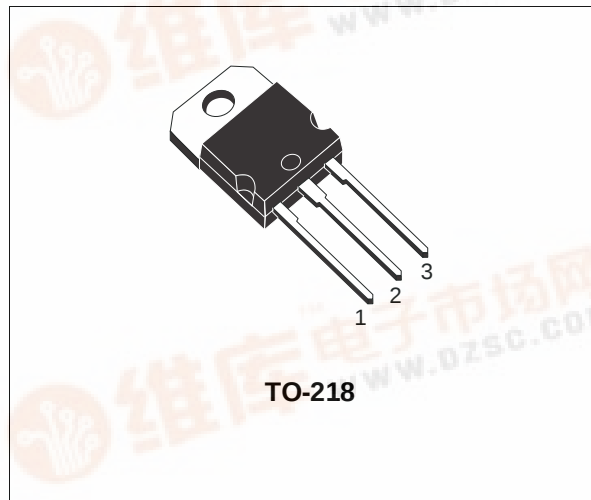
COMPLEMENTARY SILICON POWER TRANSISTORS

■ 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 $T_c \leq 25^\circ C$		80	W
T_{stg}	Storage Temperature		-65 to 150	$^\circ C$
T_j	Max. Operating Junction Temperature		150	$^\circ C$

TIP33C/TIP34C

THERMAL DATA

$R_{thj-case}$	Thermal Resistance Junction-case	Max	1.56	$^{\circ}C/W$
----------------	----------------------------------	-----	------	---------------

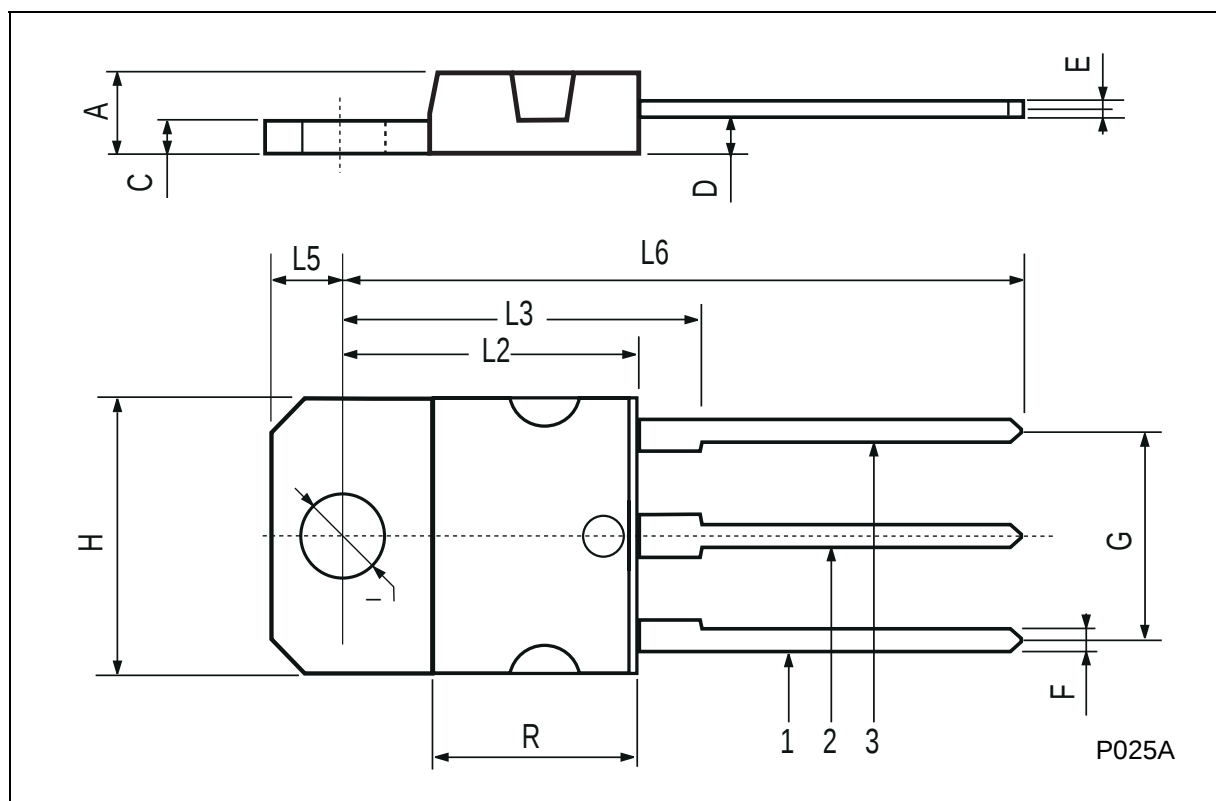
ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise specified)

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	$I_C = 3 A$	$I_B = 0.3 A$			1	V
		$I_C = 10 A$	$I_B = 2.5 A$			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 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 %
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



Information furnished is believed to be accurate and reliable. However, SGS-THOMSON Microelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of SGS-THOMSON Microelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. SGS-THOMSON Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of SGS-THOMSON Microelectronics.

© 1995 SGS-THOMSON Microelectronics - All Rights Reserved

SGS-THOMSON Microelectronics GROUP OF COMPANIES

Australia - Brazil - France - Germany - Hong Kong - Italy - Japan - Korea - Malaysia - Malta - Morocco - The Netherlands -
Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A