

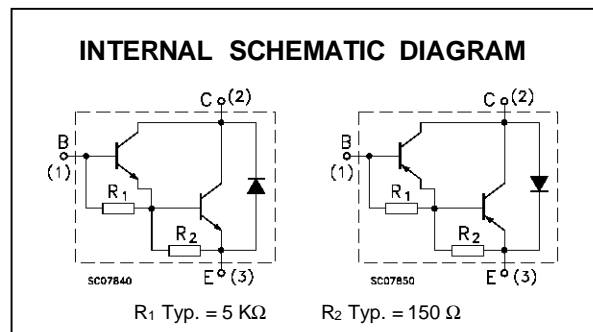
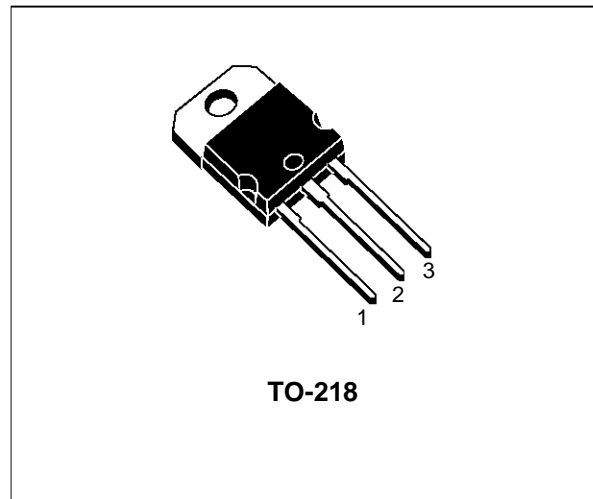
**COMPLEMENTARY SILICON POWER
DARLINGTON TRANSISTORS**

■ SGS-THOMSON PREFERRED SALESTYPES

DESCRIPTION

The TIP141 and TIP142 are silicon epitaxial-base NPN power transistors in monolithic Darlington configuration and are mounted in TO-218 plastic package. They are intended for use in power linear and switching applications.

The complementary PNP types are TIP146 and TIP147 respectively.



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value		Unit	
		NPN	TIP141		TIP142
		PNP	TIP146	TIP147	
V _{CBO}	Collector-Base Voltage (I _E = 0)		80	100	V
V _{CEO}	Collector-Emitter Voltage (I _B = 0)		80	100	V
V _{EBO}	Emitter-Base Voltage (I _C = 0)		5		V
I _C	Collector Current		10		A
I _{CM}	Collector Peak Current		20		A
I _B	Base Current		0.5		A
P _{tot}	Total Dissipation at T _{case} ≤ 25 °C		125		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.

TIP141/TIP142/TIP146/TIP147

THERMAL DATA

$R_{thj-case}$	Thermal Resistance Junction-case	Max	1	$^{\circ}C/W$
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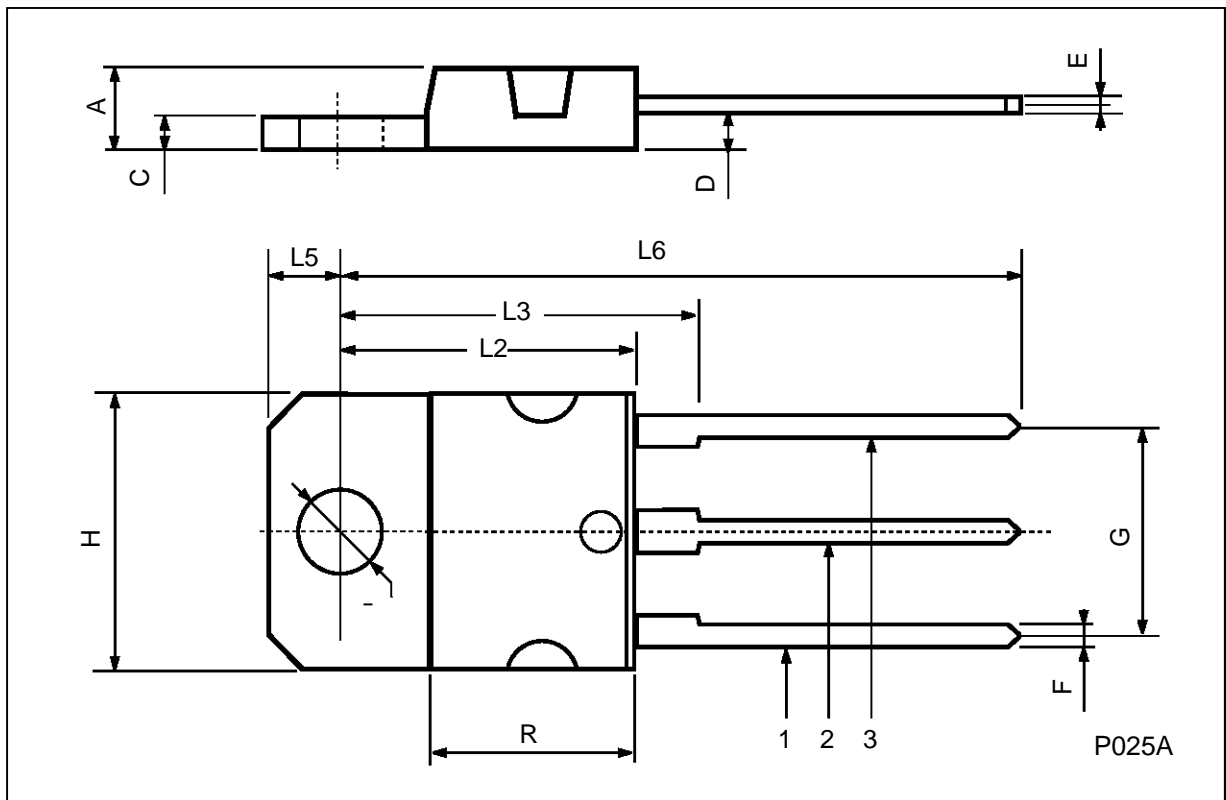
ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cut-off Current ($I_E = 0$)	for TIP141/146 $V_{CB} = 80 V$ for TIP142/147 $V_{CB} = 100 V$			1 1	mA mA
I_{CEO}	Collector Cut-off Current ($I_B = 0$)	for TIP141/146 $V_{CE} = 40 V$ for TIP142/147 $V_{CE} = 50 V$			2 2	mA mA
I_{EBO}	Emitter Cut-off Current ($I_C = 0$)	$V_{EBO} = 5 V$			2	mA
$V_{CEO(sus)}^*$	Collector-Emitter Sustaining Voltage ($I_B = 0$)	$I_C = 30 mA$ for TIP141/146 for TIP142/147	80 100			V V
$V_{CE(sat)}^*$	Collector-Emitter Saturation Voltage	$I_C = 5 A$ $I_B = 10 mA$ $I_C = 10 A$ $I_B = 40 mA$			2 3	V V
$V_{BE(on)}^*$	Base-Emitter Voltage	$I_C = 10 A$ $V_{CE} = 4 V$			3	V
h_{FE}^*	DC Current Gain	$I_C = 5 A$ $V_{CE} = 4 V$ $I_C = 10 A$ $V_{CE} = 4 V$	1000 500			
t_{on}	Turn-on Time	$I_C = 10 A$ $I_{B1} = 40 mA$		0.9		μs
t_{off}	Turn-off Time	$I_{B2} = -40 mA$ $R_L = 3 \Omega$		4		μs

* 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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