

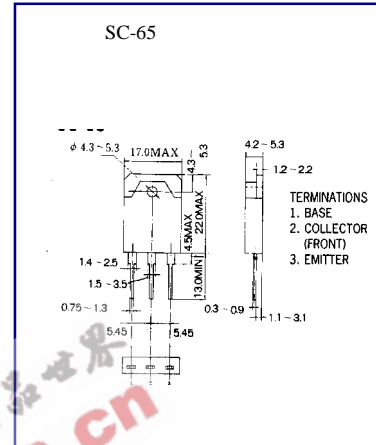


TIP140/141/142

NPN EPITAXIAL SILICON DARLINGTON TRANSISTOR

HIGH DC CURRENT GAIN

•Complementary to TIP145/146/147



ABSOLUTE MAXIMUM RATINGS ($T_a=25^\circ\text{C}$)

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage :TIP140	VCBO	60	V
TIP141		80	V
TIP142		100	V
Collector-Emitter Voltage :TIP140	VCEO	60	V
TIP141		80	V
TIP142		100	V
Emitter-Base voltage	VEBO	5	V
Collector Current (DC)	IC	10	A
Collector Current (Pulse)		15	A
Base Current (DC)	IB	0.5	A
Collector Dissipation ($T_c=25^\circ\text{C}$)	PC	125	W
Junction Temperature	Tj	150	$^\circ\text{C}$
Storage Temperature	Tstg	-50~150	$^\circ\text{C}$

Wing Shing Computer Components Co., (H.K.)Ltd.
Homepage: <http://www.wingshing.com>

Tel:(852)2341 9276 Fax:(852)2797 8153
E-mail: wsccltd@hkstar.com

ELECTRICAL CHARACTERISTICS ($T_a=25^\circ\text{C}$)

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Collector Emitter Sustaining Voltage :TIP140 :TIP141 :TIP142	$V_{CE(SUS)}$	$I_C=30mA, I_B=0$	60 80 100			V V V
Collector Cutoff Current :TIP140 :TIP141 :TIP142	I_{CEO}	$V_{CE}=30V, I_B=0$ $V_{CE}=40V, I_B=0$ $V_{CE}=50V, I_B=0$			2 2 2	mA mA mA
Collector Cutoff Current :TIP140 :TIP141 :TIP142	I_{CBO}	$V_{CB}=60V, I_E=0$ $V_{CB}=80V, I_E=0$ $V_{CB}=100V, I_E=0$			1 1 1	mA mA mA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=5V, I_C=0$			2	mA
DC Current Gain	h_{FE}	$V_{CE}=4V, I_C=5A$ $V_{CE}=4V, I_C=10A$	1000 500			
Collector- Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=5A, I_B=10mA$			2 3	V V
Base- Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=10A, I_B=40mA$			3.5	V
Base- Emitter On Voltage	$V_{BE(on)}$	$I_B=40mA$			3	V
Delay Time	t_d	$I_C=10A, I_B=40mA$		0.15		μS
Rise Time	t_r	$V_{CE}=4V, I_C=10A$		0.55		μS
Storage Time	t_s	$V_{CE}=4V, I_C=10A$		2.5		μS
Fall Time	t_f	$V_{CC}=30V, I_C=5A$ $I_B=20mA, I_{B1}=I_{B2}$		2.5		μS

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