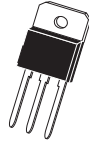


TIP140 TIP141 TIP142 NPN  
TIP145 TIP146 TIP147 PNP

**SILICON POWER DARLINGTON  
COMPLEMENTARY TRANSISTORS**



**TO-218 TRANSISTOR CASE**

**MAXIMUM RATINGS: ( $T_C=25^\circ\text{C}$ )**

Collector-Base Voltage	
Collector-Emitter Voltage	
Emitter-Base Voltage	
Continuous Collector Current	
Peak Collector Current	
Base Current	
Power Dissipation	
Operating and Storage Junction Temperature	
Thermal Resistance	

	TIP140	TIP141	TIP142	
SYMBOL	TIP145	TIP146	TIP147	UNITS
$V_{CBO}$	60	80	100	V
$V_{CEO}$	60	80	100	V
$V_{EBO}$		5.0		V
$I_C$		10		A
$I_{CM}$		20		A
$I_B$		0.5		A
$P_D$		125		W
$T_J, T_{stg}$		-65 to +150		$^\circ\text{C}$
$\theta_{JC}$		1.0		$^\circ\text{C/W}$

**ELECTRICAL CHARACTERISTICS: ( $T_C=25^\circ\text{C}$  unless otherwise noted)**

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
$I_{CBO}$	$V_{CB}=\text{Rated } V_{CBO}$			1.0	mA
$I_{CEO}$	$V_{CE}=\frac{1}{2} \text{ Rated } V_{CEO}$			2.0	mA
$I_{EBO}$	$V_{EB}=5.0\text{V}$			2.0	mA
$BV_{CEO}$	$I_C=30\text{mA}$ (TIP140, TIP145)	60			V
$BV_{CEO}$	$I_C=30\text{mA}$ (TIP141, TIP146)	80			V
$BV_{CEO}$	$I_C=30\text{mA}$ (TIP142, TIP147)	100			V
$V_{CE(SAT)}$	$I_C=5.0\text{A}, I_B=10\text{mA}$			2.0	V
$V_{CE(SAT)}$	$I_C=10\text{A}, I_B=40\text{mA}$			3.0	V
$V_{BE(ON)}$	$V_{CE}=4.0\text{V}, I_C=10\text{A}$			3.0	V
$V_F$	$I_F=10\text{A}$			2.8	V
$h_{FE}$	$V_{CE}=4.0\text{V}, I_C=5.0\text{A}$	1000			
$h_{FE}$	$V_{CE}=4.0\text{V}, I_C=10\text{A}$	500			
$t_{on}$	$I_C=10\text{A}, I_{B1}=I_{B2}=40\text{mA}, R_L=3.0\Omega$		0.9		$\mu\text{s}$
$t_{off}$	$I_C=10\text{A}, I_{B1}=I_{B2}=40\text{mA}, R_L=3.0\Omega$		4.0		$\mu\text{s}$

R2 (1-August 2008)

**Central**<sup>TM</sup>  
**Semiconductor Corp.**

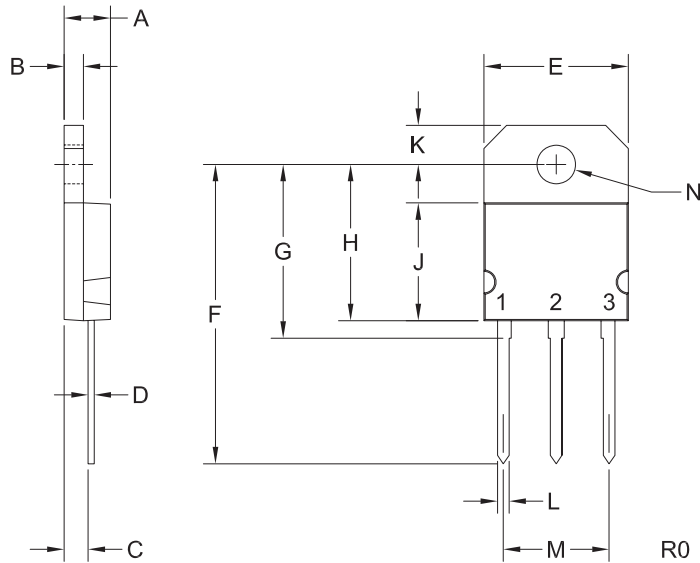
**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR TIP140, TIP145 series types are Complementary Silicon Power Darlington Transistors manufactured by the epitaxial base process, designed for general purpose amplifier and low speed switching applications where high gain is required.

**MARKING: FULL PART NUMBER**

**SILICON POWER DARLINGTON  
COMPLEMENTARY TRANSISTORS**

**TO-218 TRANSISTOR CASE - MECHANICAL OUTLINE**



SYMBOL	DIMENSIONS			
	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.185	0.193	4.70	4.90
B	0.075	0.082	1.91	2.08
C	0.098		2.49	
D	0.019	0.030	0.48	0.76
E	0.578	0.598	14.68	15.19
F	1.220		30.99	
G	0.708		17.98	
H	-	0.637	-	16.18
J	-	0.480	-	12.19
K	0.155	0.163	3.94	4.14
L	0.043	0.051	1.09	1.30
M	0.425	0.437	10.80	11.10
N	0.157	0.161	3.99	4.09

**LEAD CODE:**

- 1) BASE
- 2) COLLECTOR
- 3) EMITTER

Note: Tab is common to lead 2.

**MARKING:**

**FULL PART NUMBER**

TO-218 Transistor (REV: R0)

R2 (1-August 2008)