

Silicon NPN Power Transistors

TIP160/161/162

DESCRIPTION

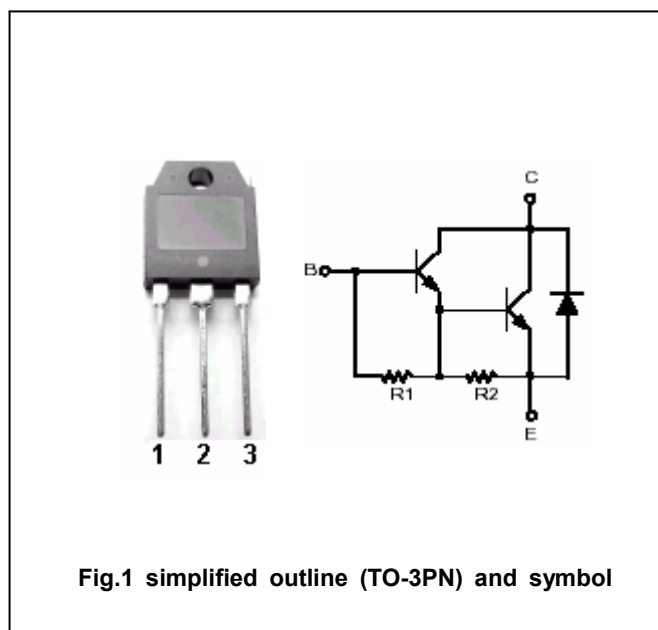
- With TO-3PN package
- DARLINGTON
- 10A rated continuous collector current

APPLICATIONS

- For use in automotive ignition, switching and motor control applications

PINNING

PIN	DESCRIPTION
1	Base
2	Collector; connected to mounting base
3	Emitter

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

SYMBOL	PARAMETER		CONDITIONS	VALUE	UNIT
V_{CBO}	Collector-base voltage	TIP160	Open emitter	320	V
		TIP161		350	
		TIP162		380	
V_{CEO}	Collector-emitter voltage	TIP160	Open base	320	V
		TIP161		350	
		TIP162		380	
V_{EBO}	Emitter-base voltage		Open collector	5	V
I_C	Collector current-DC			10	A
I_{CM}	Collector current-Pulse			15	A
I_B	Base current-DC			1	A
P_C	Collector power dissipation		$T_c=25^\circ\text{C}$	125	W
T_j	Junction temperature			150	$^\circ\text{C}$
T_{stg}	Storage temperature			-65~150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal resistance junction to case	1.0	$^\circ\text{C}/\text{W}$

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CHARACTERISTICS

Tj=25°C unless otherwise specified

SYMBOL	PARAMETER		CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{(BR)CEO}$	Collector-emitter breakdown voltage	TIP160	$I_C=10mA, I_B=0$	320			V
		TIP161		350			
		TIP162		380			
$V_{CE(sat)-1}$	Collector-emitter saturation voltage		$I_C=6.5A, I_B=0.1A$			2.8	V
$V_{CE(sat)-2}$	Collector-emitter saturation voltage		$I_C=10A, I_B=1A$			2.9	V
$V_{BE(sat)}$	Base-emitter saturation voltage		$I_C=6.5A, I_B=0.1A$			2.2	V
V_F	Diode forward voltage		$I_F=10A$			3.5	V
I_{CEO}	Collector cut-off current	TIP160	$V_{CE}=320V, I_B=0$			1.0	mA
		TIP161	$V_{CE}=350V, I_B=0$				
		TIP162	$V_{CE}=380V, I_B=0$				
I_{EBO}	Emitter cut-off current		$V_{EB}=5V; I_C=0$			100	mA
h_{FE}	DC current gain		$I_C=4A; V_{CE}=2.2V$	200			

Switching times

t_d	Delay time	$V_{CC}=33V, I_C=6.5A, I_{B1}=-I_{B2}=100mA, t_p=20\mu s; \text{Duty Cycle} \leq 2.0\%$		0.3		μs
t_r	Rise time			1.5		μs
t_s	Storage time			2.3		μs
t_f	Fall time			2.8		μs

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PACKAGE OUTLINE

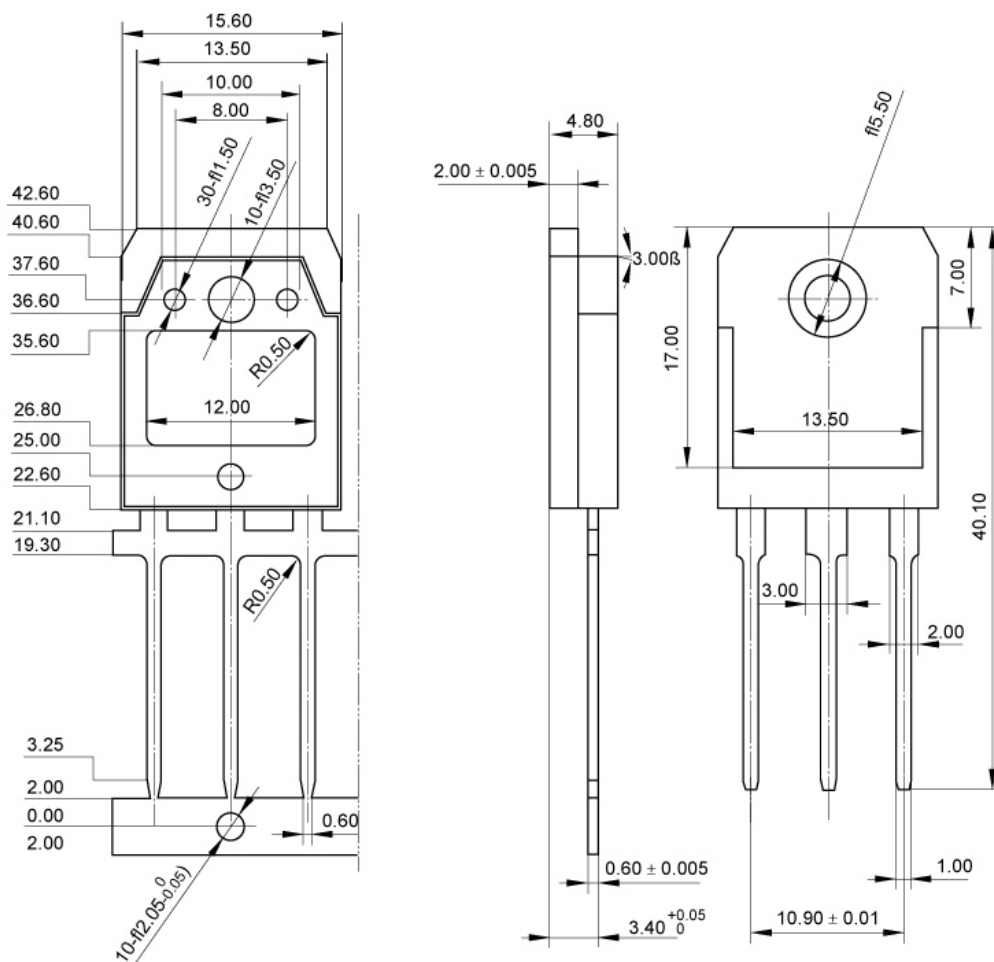


Fig.2 Outline dimensions(unindicated tolerance:±0.1mm)