

**SPTECH Silicon NPN Power Transistor**

**2N6542**

**DESCRIPTION**

- Excellent Safe Operating Area
- High Voltage, High Speed
- Low Saturation Voltage

**APPLICATIONS**

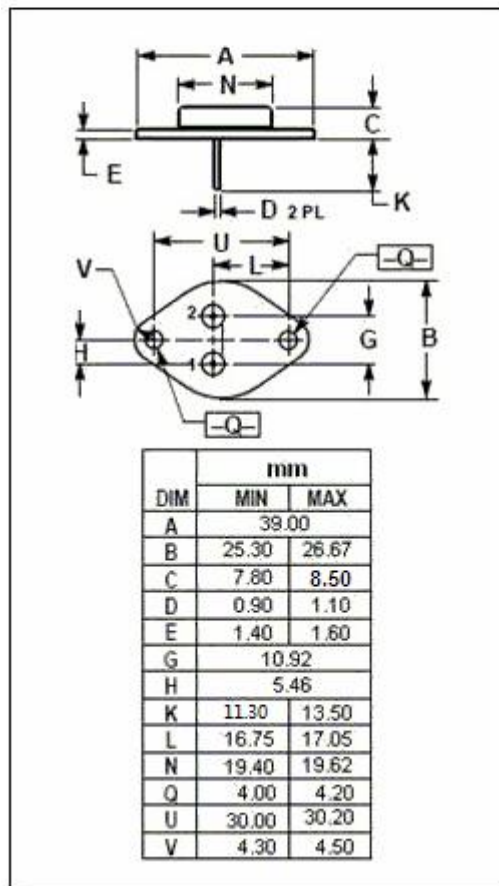
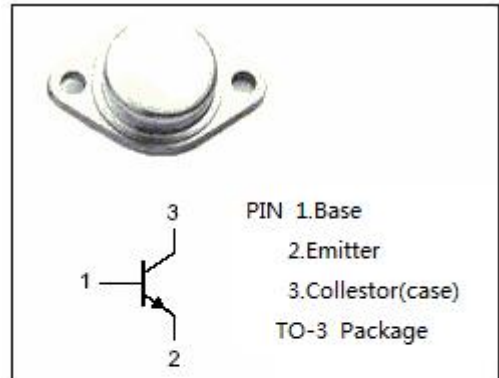
- Designed for high-voltage ,high-speed, power switching in inductive circuits where fall time is critical. They are particularly suited for 115 and 220 volt line operated switch-mode applications such as:
- Switching regulators
- PWM inverters and motor controls
- Solenoid and relay drivers
- Deflection circuits

**ABSOLUTE MAXIMUM RATINGS(T<sub>a</sub>=25°C)**

SYMBOL	PARAMETER	VALUE	UNIT
V <sub>CEV</sub>	Collector-Emitter Voltage	650	V
V <sub>CEO(SUS)</sub>	Collector-Emitter Voltage	300	V
V <sub>EBO</sub>	Emitter-Base Voltage	8	V
I <sub>c</sub>	Collector Current-Continuous	5	A
I <sub>CM</sub>	Collector Current-Peak	10	A
P <sub>c</sub>	Collector Power Dissipation@T <sub>c</sub> =25°C	100	W
T <sub>J</sub>	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature	-65~150	°C

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	MAX	UNIT
R <sub>th j-c</sub>	Thermal Resistance, Junction to Case	1.75	°C/W



**ELECTRICAL CHARACTERISTICS**

$T_C=25^{\circ}\text{C}$  unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
$V_{CE0(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C= 50\text{mA}; I_B= 0$	300		V
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage	$I_C= 3\text{A}; I_B= 0.6\text{A}$		1.0	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	$I_C= 5\text{A}; I_B= 1.0\text{A}$		5.0	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C= 3\text{A}; I_B= 0.6\text{A}$		1.4	V
$I_{EBO}$	Emitter Cutoff Current	$V_{EB}= 8\text{V}; I_C= 0$		1.0	mA
$h_{FE-1}$	DC Current Gain	$I_C= 1.5\text{A}; V_{CE}= 2\text{V}$	12	60	
$h_{FE-2}$	DC Current Gain	$I_C= 3\text{A}; V_{CE}= 2\text{V}$	7	35	
$f_T$	Current Gain-Bandwidth Product	$I_C= 0.2\text{A}; V_{CE}= 10\text{V}; f_{test}=1.0\text{MHz}$	6.0	35	MHz

Switching times-Resistive Load

$t_d$	Delay Time	$I_C= 3\text{A}, V_{CC}= 250\text{V},$ $I_{B1}= -I_{B2}= 0.6\text{A}, t_p= 0.1\text{ms}$ Duty Cycle $\leq 2.0\%$		0.05	$\mu\text{s}$
$t_r$	Rise Time			0.7	$\mu\text{s}$
$t_s$	Storage Time			4.0	$\mu\text{s}$
$t_f$	Fall Time			0.8	$\mu\text{s}$