

**isc Silicon NPN Power Transistors**

**2N3715/3716**

**DESCRIPTION**

- DC Current Gain-  
:  $h_{FE} = 50-150 @ I_C = 1A$
- Wide Area of Safe Operation
- Low Collector Saturation Voltage-  
:  $V_{CE(sat)} = 0.8V(\text{Max.}) @ I_C = 5A$
- Complement to Type 2N3791/3792

**APPLICATIONS**

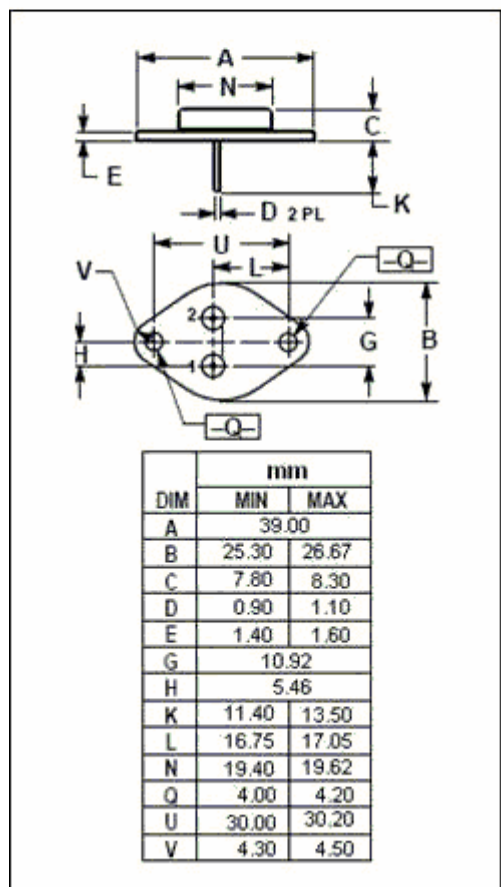
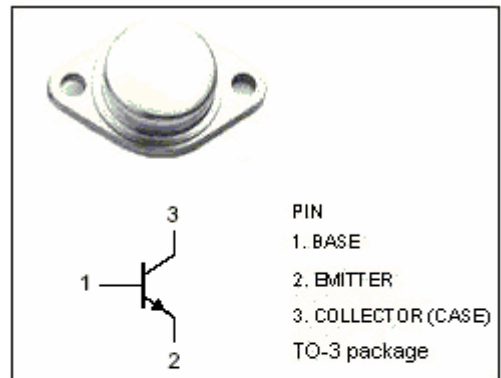
- Designed for medium-speed switching and amplifier applications

**ABSOLUTE MAXIMUM RATINGS( $T_a = 25^\circ C$ )**

SYMBOL	PARAMETER	VALUE	UNIT	
$V_{CBO}$	Collector-Base Voltage	2N3715	80	V
		2N3716	100	
$V_{CEO}$	Collector-Emitter Voltage	2N3715	60	V
		2N3716	80	
$V_{EBO}$	Emitter-Base Voltage	7	V	
$I_C$	Collector Current-Continuous	10	A	
$I_B$	Base Current	4	A	
$P_C$	Collector Power Dissipation@ $T_C = 25^\circ C$	150	W	
$T_J$	Junction Temperature	200	$^\circ C$	
$T_{stg}$	Storage Temperature	-65~200	$^\circ C$	

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	MAX	UNIT
$R_{th j-c}$	Thermal Resistance, Junction to Case	1.17	$^\circ C/W$



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## ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER		CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage	2N3715	$I_C=200\text{mA}; I_B=0$	60			V
		2N3716		80			
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage		$I_C=5\text{A}; I_B=0.5\text{A}$			0.8	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage		$I_C=5\text{A}; I_B=0.5\text{A}$			1.5	V
$V_{BE(on)}$	Base-Emitter On Voltage		$I_C=3\text{A}; V_{CE}=2\text{V}$			1.5	V
$I_{CEX}$	Collector Cutoff Current	2N3715	$V_{CE}=80\text{V}; V_{BE(off)}=-1.5\text{V}$ $V_{CE}=60\text{V}; V_{BE(off)}=-1.5\text{V}, T_C=150^\circ\text{C}$			1.0 10	mA
		2N3716		$V_{CE}=100\text{V}; V_{BE(off)}=-1.5\text{V}$ $V_{CE}=80\text{V}; V_{BE(off)}=-1.5\text{V}, T_C=150^\circ\text{C}$			
$I_{EBO}$	Emitter Cutoff Current		$V_{EB}=7\text{V}; I_C=0$			5.0	mA
$h_{FE-1}$	DC Current Gain		$I_C=1\text{A}; V_{CE}=2\text{V}$	50		150	
$h_{FE-2}$	DC Current Gain		$I_C=3\text{A}; V_{CE}=2\text{V}$	30			
$f_T$	Current-Gain—Bandwidth Product		$I_C=0.5\text{A}; V_{CE}=10\text{V}; f_{test}=1.0\text{MHz}$	4			MHz

## Switching Times

$t_r$	Rise Time	$I_C=5\text{A}; I_{B1}=-I_{B2}=0.5\text{A}$		0.45		$\mu\text{s}$
$t_{stg}$	Storage Time			0.3		$\mu\text{s}$
$t_f$	Fall Time			0.4		$\mu\text{s}$