

INCHANGE Semiconductor

isc Product Specification

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

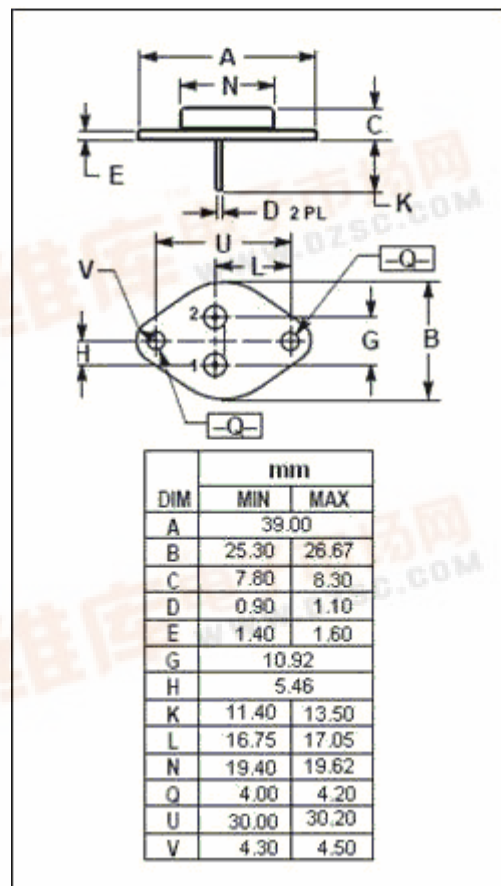
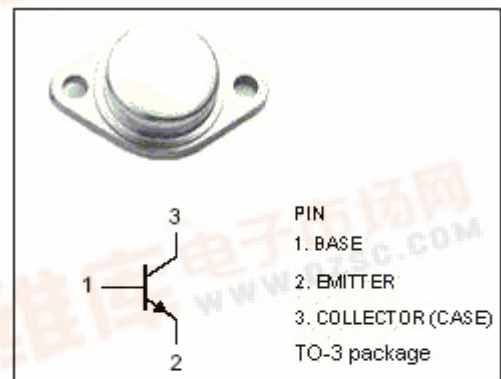
- Designed for medium-speed switching and amplifier applications

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	2N3715	80
		2N3716	
V_{CEO}	Collector-Emitter Voltage	2N3715	60
		2N3716	
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@ $T_C = 25^\circ\text{C}$	150	W
T_J	Junction Temperature	200	$^\circ\text{C}$
T_{stg}	Storage Temperature	-65~200	$^\circ\text{C}$

THERMAL CHARACTERISTICS

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



isc Silicon NPN Power Transistors**2N3715/3716****ELECTRICAL CHARACTERISTICS** $T_C=25^{\circ}\text{C}$ unless otherwise specified

SYMBOL	PARAMETER		CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{CEQ(SUS)}$	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	$V_{CE} = 100\text{V}; V_{BE(off)} = -1.5\text{V}$ $V_{CE} = 80\text{V}; V_{BE(off)} = -1.5\text{V}, T_C = 150^{\circ}\text{C}$			1.0 10	
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		μs
t_{stg}	Storage Time			0.3		μs
t_f	Fall Time			0.4		μs