

Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from Europe, America and south Asia, supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts, Customers Priority, Honest Operation, and Considerate Service", our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip, ALPS, ROHM, Xilinx, Pulse, ON, Everlight and Freescale. Main products comprise IC, Modules, Potentiometer, IC Socket, Relay, Connector. Our parts cover such applications as commercial, industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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NPN SILICON POWER TRANSISTOR

DESCRIPTION

These 2N6315 and 2N6316 devices are an excellent choice for un-tuned amplifier applications. It is also ideal for general purpose power switch and amplifier applications. Microsemi also offers numerous other products to meet higher and lower power voltage regulation applications.



**TO-213AA (TO-66)
Package**

Important: For the latest information, visit our website <http://www.microsemi.com>.

FEATURES

- Hermetically sealed.
- Complimentary pairing with the PNP 2N6317 and 2N6318.
- RoHS compliant versions available.

APPLICATIONS / BENEFITS

- Convenient package.
- Mechanically rugged.
- Commercial, industrial, and military uses.

MAXIMUM RATINGS @ 25 °C unless otherwise stated

Parameters/Test Conditions	Symbol	Value	Unit
Junction and Storage Temperature	T _J and T _{STG}	-65 to +200	°C
Thermal Resistance Junction-to-Lead ⁽¹⁾	R _{θJL}	235	°C
Collector-Base Voltage 2N6315 2N6316	V _{CBO}	60 80	V
Emitter-Base Voltage	V _{EBO}	5	V
Collector-Emitter Voltage 2N6315 2N6316	V _{CEO}	60 80	V
Continuous Operating Collector Current	I _C	7	A
Continuous Base Current		2	A
Total Power Dissipation ⁽²⁾	P _T	90	W

NOTES: 1. At 1/8 inch from case for 10 seconds.

2. Derate linearly at 0.515 W/°C.

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MECHANICAL and PACKAGING

- CASE: Hermetic, TO-66 package. Nickel plate with nickel cap.
- TERMINALS: Solder dipped (Sn63/Pb37) over nickel plated alloy 52. RoHS compliant matte-tin plating is also available.
- MARKING: MSC, part number, date code, polarity symbol.
- WEIGHT: Approximately 5.7 grams.
- See [Package Dimensions](#) on last page.

PART NOMENCLATURE**2N6315 (e3)**

JEDEC Type Number
See [Electrical Characteristics](#)
table

RoHS Compliance
e3 = RoHS compliant
Blank = non-RoHS compliant

SYMBOLS & DEFINITIONS	
Symbol	Definition
I_B	Base current
T_C	Case temperature
V_{CB}	Collector-base voltage
V_{CC}	Collector-supply voltage
V_{EB}	Emitter-base voltage

ELECTRICAL CHARACTERISTICS @ 25 °C unless otherwise stated

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
STATIC CHARACTERISTICS				
Collector Cutoff Current $V_{CE} = 60$ V, $V_{BE} = 1.5$ V, $T_C = 150$ °C $V_{CE} = 80$ V, $V_{BE} = 1.5$ V, $T_C = 150$ °C	2N6315 2N6316	I_{CEX}		2.0 mA
Collector Cutoff Current $V_{CE} = 60$ V, $V_{BE} = 1.5$ V $V_{CE} = 80$ V, $V_{BE} = 1.5$ V	2N6315 2N6316	I_{CEX}		0.25 mA
Emitter Cutoff Current $V_{EB} = 5$ V		I_{EBO}		1.0 mA
Collector-Emitter Open Base Sustain Voltage ⁽¹⁾ $I_B = 0$, $I_C = 100$ mA	2N6315 2N6316	$V_{CEO(sus)}$	60 80	
Collector Cutoff Current, Base Open $I_B = 0$, $V_{CE} = 30$ V $I_B = 0$, $V_{CE} = 40$ V	2N6315 2N6316	I_{CEO}		0.5 mA
DC Forward Current Transfer Ratio ⁽¹⁾ $I_C = 7$ A, $V_{CE} = 4$ V $I_C = 2.5$ A, $V_{CE} = 4$ V $I_C = 0.5$ A, $V_{CE} = 4$ V		h_{FE}	4 20 35	100
Collector-Emitter Saturation Voltage ⁽¹⁾ $I_C = 7.0$ A, $I_B = 1.75$ A $I_C = 4.0$ A, $I_B = 0.4$ A		$V_{CE(sat)}$		2.0 1.0 V
Base-Emitter Saturation Voltage ⁽¹⁾ $I_C = 7.0$ A, $I_B = 1.75$ A		$V_{BE(sat)}$		2.5 V
Base-Emitter Voltage ⁽¹⁾ $I_C = 2.5$ A, $V_{CE} = 4.0$ V		V_{BE}		1.5 V

NOTE: 1. Pulse Width ≤ 300 μ s; duty cycle ≤ 2 %.

DYNAMIC CHARACTERISTICS

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio $V_{CE} = 10$ V, $I_C = 0.25$ A, $f = 1$ MHz	$ h_{fe} $	4		
Common Base Output $V_{CB} = 10$ V, $I_E = 0$ A, $f = 1$ MHz	C_{ob}		200	pF
Common Emitter Small-Signal Short-Circuit Forward Current Trans-Ratio $V_{CE} = 4$ V, $I_C = 0.5$ A, $f = 1$ kHz	h_{fe}	20		

SWITCHING CHARACTERISTICS

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Rise time $V_{CC} = 30$ V, $I_C = 2.5$ A, $I_{B1} = I_{B2} = 0.25$ A (see figure 2)	t_r		0.7	μ s
Storage time $V_{CC} = 30$ V, $I_C = 2.5$ A, $I_{B1} = I_{B2} = 0.25$ A (see figure 2)	t_s		1.0	μ s
Fall time $V_{CC} = 30$ V, $I_C = 2.5$ A, $I_{B1} = I_{B2} = 0.25$ A (see figure 2)	t_f		0.8	μ s

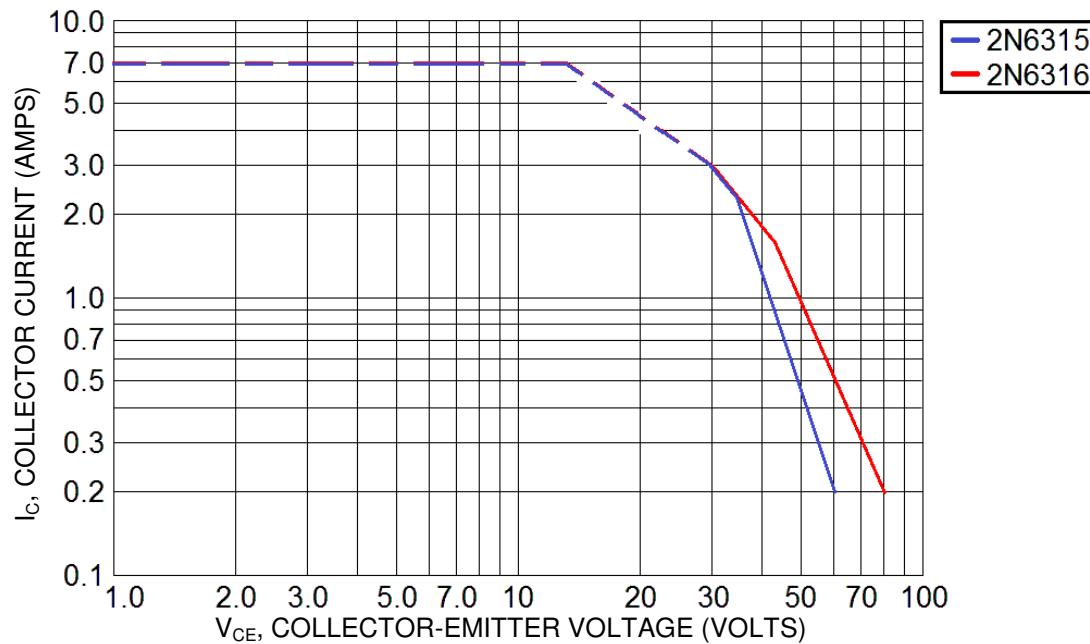
GRAPHS


Figure 1
Safe Operating Area ($T_C = 25^\circ\text{C}$)

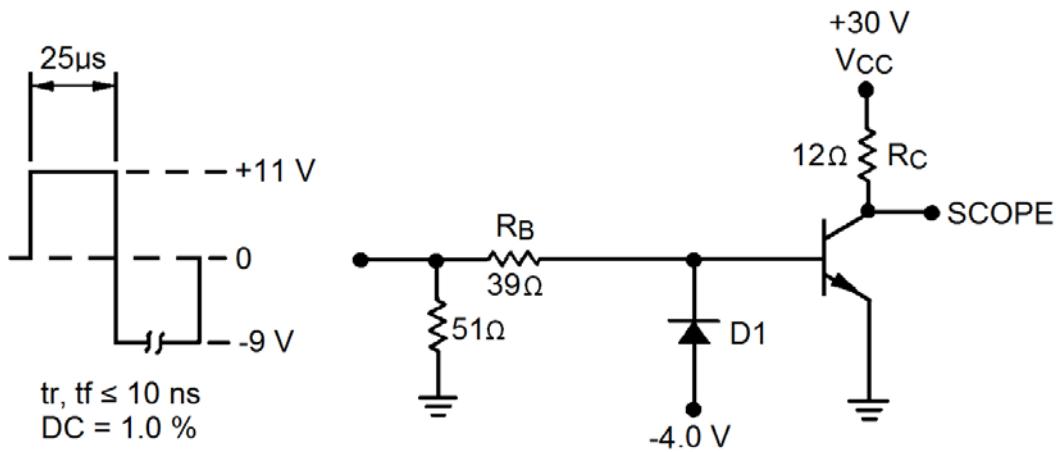
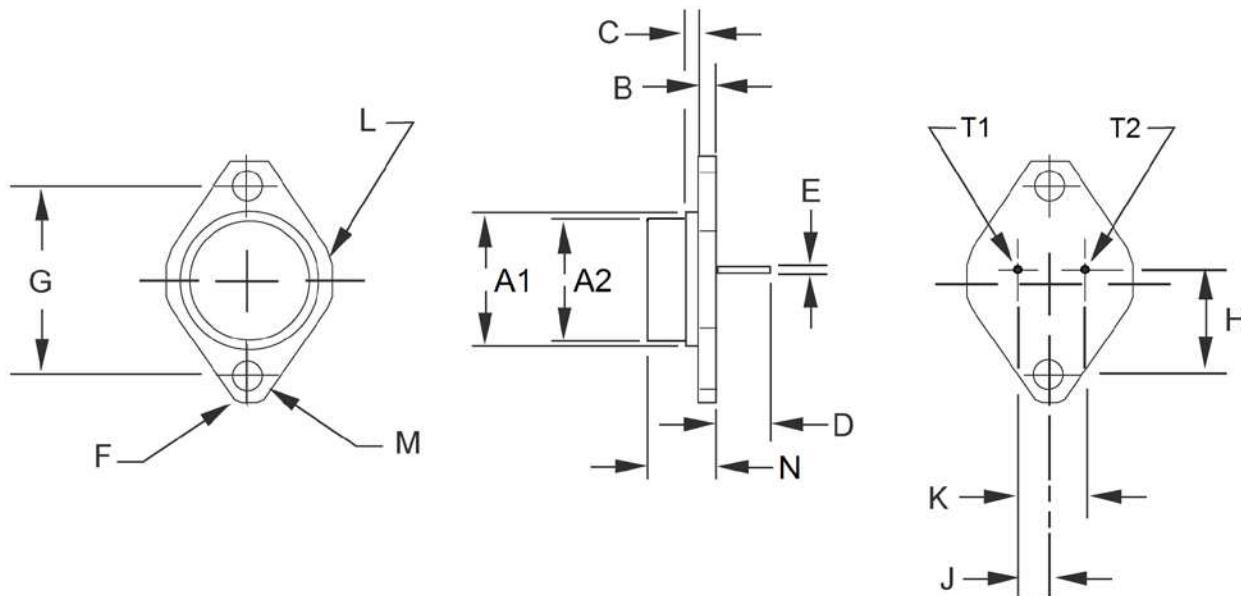


Figure 2
Switching Times Test Circuit

PACKAGE DIMENSIONS


DIM	INCH		MILLIMETERS	
	MIN	MAX	MIN	MAX
A1	.470	.500	11.94	12.70
A2	-	.620	-	15.75
B	.050	.075	1.27	1.91
C	-	.050	-	1.27
D	.360	-	9.14	-
E	.028	.034	0.71	0.86
F	.145 radius		3.68 radius	
G	.958	.962	24.33	24.43
H	.570	.590	14.48	14.99
J	.093	.107	2.36	2.72
K	.190	.210	4.83	5.33
L	.350 radius		8.89 radius	
M	.142	.152	3.61	3.86
N	.250	.340	6.35	8.64
T1	Base			
T2	Emitter			
Case	Collector			