onsemi

100 V, 3.0 A, Low V_{CE(sat)} NPN Transistor NSS1C201L, NSV1C201L

onsemi's e²PowerEdge family of low $V_{CE(sat)}$ transistors are miniature surface mount devices featuring ultra low saturation voltage $(V_{CE(sat)})$ and high current gain capability. These are designed for use in low voltage, high speed switching applications where affordable efficient energy control is important.

Typical applications are DC–DC converters and power management in portable and battery powered products such as cellular and cordless phones, PDAs, computers, printers, digital cameras and MP3 players. Other applications are low voltage motor controls in mass storage products such as disc drives and tape drives. In the automotive industry they can be used in air bag deployment and in the instrument cluster. The high current gain allows e²PowerEdge devices to be driven directly from PMU's control outputs, and the Linear Gain (Beta) makes them ideal components in analog amplifiers.

Features

NSV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC–Q101 Qualified and PPAP Capable

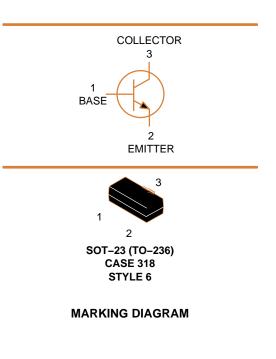
These Devices are Pb–Free, Halogen Free/BFR Free and are RoHS Compliant

MAXIMUM RATINGS ($T_A = 25 C$)

Rating	Symbol	Max	Unit		
Collector-Emitter Voltage	V _{CEO}	100	Vdc		
Collector-Base Voltage	V _{CBO}	140	Vdc		
Emitter-Base Voltage	V _{EBO}	7.0	Vdc		
Collector Current – Continuous	Ι _C	2.0	А		
Collector Current – Peak	I _{CM}	3.0	А		

THERMAL CHARACTERISTICS

Characteristic	Symbol	Мах	Unit	
----------------	--------	-----	------	--



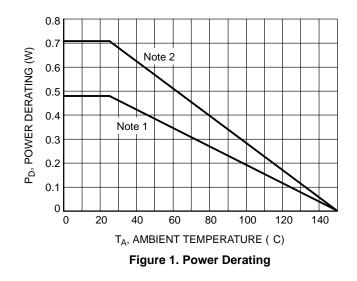
NSS1C201L, NSV1C201L

ELECTRICAL CHARACTERISTICS (T_A = 25 C unless otherwise noted)

Characteristic	Symbol	Min	Тур	Max	Unit
OFF CHARACTERISTICS				•	•
Collector – Emitter Breakdown Voltage ($I_C = 10 \text{ mAdc}, I_B = 0$)	V _{(BR)CEO}	100			Vdc
Collector – Base Breakdown Voltage $(I_{C} = 0.1 \text{ mAdc}, I_{E} = 0)$	V _{(BR)CBO}	140			Vdc
Emitter – Base Breakdown Voltage $(I_E = 0.1 \text{ mAdc}, I_C = 0)$	V _{(BR)EBO}	7.0			Vdc
Collector Cutoff Current ($V_{CB} = 140 \text{ Vdc}, I_E = 0$)	I _{CBO}			100	nAdc
Emitter Cutoff Current (V _{EB} = 6.0 Vdc)	I _{EBO}			50	nAdc
ON CHARACTERISTICS					
DC Current Gain (Note 3) (I _C = 10 mA, V _{CE} = 2.0 V) (I _C = 500 mA, V _{CE} = 2.0 V) (I _C = 1.0 A, V _{CE} = 2.0 V) (I _C = 2.0 A, V _{CE} = 2.0 V)	h _{FE}	150 120 80 40	240	360	
$\begin{array}{l} \mbox{Collector} - \mbox{Emitter Saturation Voltage (Note 3)} \\ (I_{C} = 0.1 \mbox{ A}, I_{B} = 0.01 \mbox{ A}) \\ (I_{C} = 0.5 \mbox{ A}, I_{B} = 0.05 \mbox{ A}) \\ (I_{C} = 1.0 \mbox{ A}, I_{B} = 0.100 \mbox{ A}) \\ (I_{C} = 2.0 \mbox{ A}, I_{B} = 0.200 \mbox{ A}) \end{array}$	V _{CE(sat)}			0.030 0.060 0.090 0.150	V
Base – Emitter Saturation Voltage (Note 3) ($I_C = 1.0 A$, $I_B = 0.100 A$)	V _{BE(sat)}			0.950	V
Base – Emitter Turn–on Voltage (Note 3) ($I_C = 1.0 \text{ A}, V_{CE} = 2.0 \text{ V}$)	V _{BE(on)}			0.850	V
Cutoff Frequency ($I_C = 100 \text{ mA}, V_{CE} = 5.0 \text{ V}, f = 100 \text{ MHz}$)	f _T		110		MHz
Input Capacitance (V _{EB} = 2.0 V, f = 1.0 MHz)	Cibo		230		pF
Output Capacitance (V _{CB} = 10 V, f = 1.0 MHz)	Cobo		14		pF

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions. 3. Pulsed Condition: Pulse Width = 300 msec, Duty Cycle 2%.

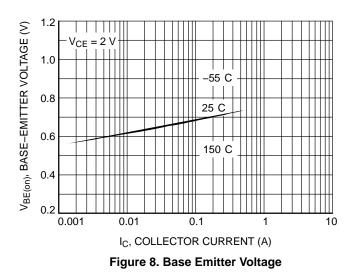
TYPICAL CHARACTERISTICS



NSS1C201L, NSV1C201L

NSS1C201L, NSV1C201L

TYPICAL CHARACTERISTICS





SOT 23 (TO 236) 2.90x1.30x1.00 1.90P CASE 318 ISSUE AU

DATE 14 AUG 2024

SOT 23 (TO 236) 2.90x1.30x1.00 1.90P CASE 318 ISSUE AU

DATE 14 AUG 2024

	STYLE 6: PIN 1. BASE 2. EMITTER 3. COLLECTOR	STYLE 7: PIN 1. EMITTER 2. BASE 3. COLLECTOR	STYLE 8: PIN 1. ANODE 2. NO CONNECTION 3. CATHODE	I	
STYLE 9:	STYLE 10:	STYLE 11:	STYLE 12:	STYLE 13:	STYLE 14:
PIN 1. ANODE	PIN 1. DRAIN	PIN 1. ANODE	PIN 1. CATHODE	PIN 1. SOURCE	PIN 1. CATHODE
2. ANODE	2. SOURCE	2. CATHODE	2. CATHODE	2. DRAIN	2. GATE
3. CATHODE	3. GATE	3. CATHODE-ANODE	3. ANODE	3. GATE	3. ANODE
STYLE 15:	STYLE 16:	STYLE 17:	STYLE 18:	STYLE 19:	
PIN 1. GATE	PIN 1. ANODE	PIN 1. NO CONNECTION	PIN 1. NO CONNECTION	PIN 1. CATHODE	
2. CATHODE	2. CATHODE	2. ANODE	2. CATHODE	2. ANODE	
3. ANODE	3. CATHODE	3. CATHODE	3. ANODE	3. CATHODE-ANODE	
	STYLE 22: PIN 1. RETURN 2. OUTPUT 3. INPUT	STYLE 23: PIN 1. ANODE 2. ANODE 3. CATHODE 3.			

onsemi, , and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "onsemi" or its affiliates and/or subsidiaries in the United States and/or other countries. onsemi owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of onsemi's product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent-Marking.pdf. Onsemi reserves the right to make changes at any time to any products or information herein, without notice. The information herein is provided "as-is" and onsemi makes no warranty, representation or guarantee regarding the accuracy of the information, product features, availability, functionality, or suitability of its products for any particular purpose, nor does onsemi assume any liability arising out of the application or use of any product or incruit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using onsemi