



2DD2678

LOW $V_{CE(SAT)}$ NPN SURFACE MOUNT TRANSISTOR

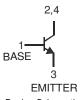
Features

- Epitaxial Planar Die Construction
- Ideally Suited for Automated Assembly Processes
- Ideal for Medium Power Switching or Amplification Applications
- Lead Free By Design/RoHS Compliant (Note 1)
- "Green" Device (Note 2)

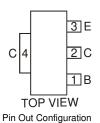
Mechanical Data

- Case: SOT89-3L
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals: Finish Matte Tin annealed over Copper leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.072 grams (approximate)





COLLECTOR



Device Schematic

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	15	V
Collector-Emitter Voltage	V _{CEO}	12	V
Emitter-Base Voltage	V _{EBO}	6	V
Peak Pulse Current	Ісм	6	Α
Continuous Collector Current	Ic	3	Α

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 3) @ T _A = 25°C	P _D	0.9	W
Thermal Resistance, Junction to Ambient Air (Note 3) @ T _A = 25°C	$R_{ hetaJA}$	139	°C/W
Power Dissipation (Note 4) @ T _A = 25°C	P_{D}	2	W
Thermal Resistance, Junction to Ambient Air (Note 4) @ T _A = 25°C	$R_{ hetaJA}$	62.5	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

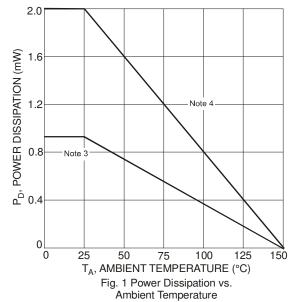
Electrical Characteristics @T_A = 25°C unless otherwise specified

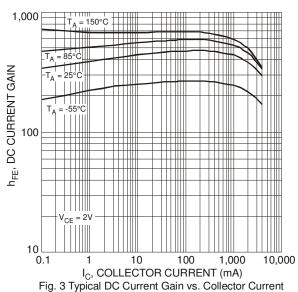
Characteristic	Symbol	Min	Тур	Max	Unit	Conditions
OFF CHARACTERISTICS						
Collector-Base Breakdown Voltage	V _{(BR)CBO}	15	_	_	V	$I_C = 10\mu A, I_E = 0$
Collector-Emitter Breakdown Voltage (Note 5)	$V_{(BR)CEO}$	12	_	_	V	$I_C = 1 \text{mA}, I_B = 0$
Emitter-Base Breakdown Voltage	V _{(BR)EBO}	6	_	_	V	$I_E = 10 \mu A, I_C = 0$
Collector Cut-Off Current	I _{CBO}	_	_	0.1	μΑ	$V_{CB} = 15V, I_{E} = 0$
Emitter Cut-Off Current	I _{EBO}	_	_	0.1	μΑ	$V_{EB} = 6V, I_{C} = 0$
ON CHARACTERISTICS (Note 5)						
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	_	90	250	mV	$I_C = 1.5A, I_B = 30mA$
DC Current Gain	h_{FE}	270	_	680	_	$V_{CE} = 2V, I_{C} = 500mA$
SMALL SIGNAL CHARACTERISTICS						
Output Capacitance	C _{obo}		26		pF	$V_{CB} = 10V, I_E = 0,$ f = 1MHz
Current Gain-Bandwidth Product	f _T	_	170	_	MHz	V _{CE} = 2V, I _C = 100mA, f = 100MHz

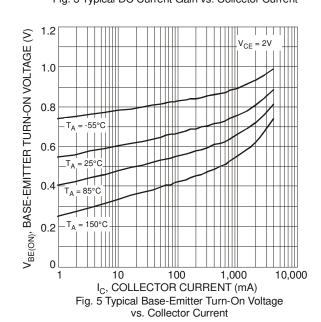
Notes:

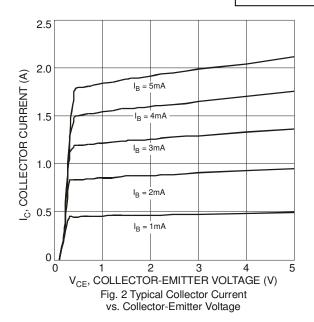
- 1. No purposefully added lead.
- 2. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
- 3. Device mounted on FR-4 PCB with minimum recommended pad layout.
- 4. Device mounted on FR-4 PCB with 1 inch² copper pad layout.
- Measured under pulsed conditions. Pulse width = 300 μs. Duty cycle ≤2%.

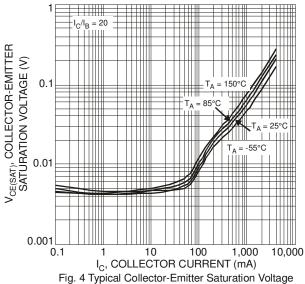










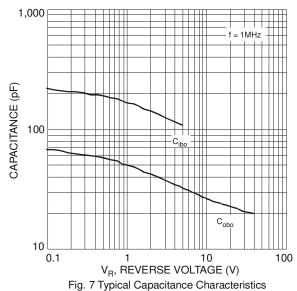


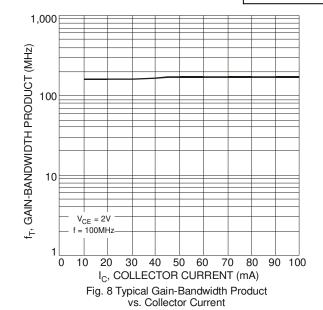
vs. Collector Current

1.2

| Second | Secon





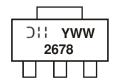


Ordering Information (Note 6)

Part Number	Case	Packaging
2DD2678-13	SOT89-3L	2500/Tape & Reel

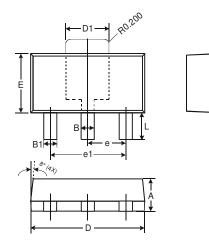
Notes: 6. For packaging details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

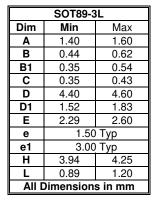
Marking Information



 $2678 = Product Type Marking Code \\ YWW = Date Code Marking \\ Y = Last digit of year (ex: 8 = 2008) \\ WW = Week code (01 - 53)$

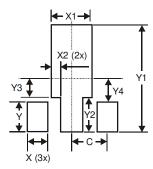
Package Outline Dimensions







Suggested Pad Layout



Dimensions	Value (in mm)
Х	0.900
X1	1.733
X2	0.416
Υ	1.300
Y1	4.600
Y2	1.475
Y3	0.950
Y4	1.125
С	1.500

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