

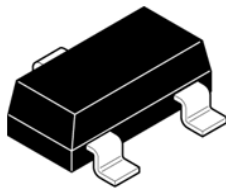
Features

- Ideal for Medium Power Amplification and Switching
- Ultra Low Collector-Emitter Saturation Voltage
- Complimentary NPN Type Available (DSS5240T)
- “Lead-Free”, RoHS Compliant (Note 1)
- Halogen and Antimony Free. “Green” Device (Note 2)
- Qualified to AEC-Q101 Standards for High Reliability

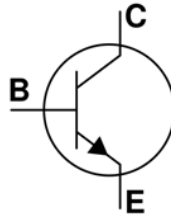
Mechanical Data

- Case: SOT23
- 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. Solderable per MIL-STD-202, Method 208
- Weight: 0.008 grams (approximate)

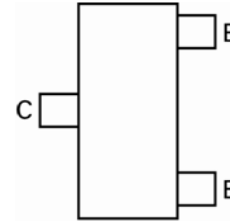
SOT23



Top view



Device symbol



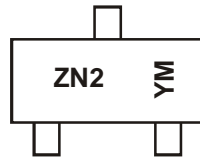
Top View
Pin Configuration

Ordering Information (Note 3)

Product	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
DSS4240T-7	ZN2	7	8	3,000

- Notes:
1. No purposefully added lead.
 2. Diodes Inc's "Green" Policy can be found on our website at <https://www.diodes.com/>
 3. Devices with lot number starting from PID0155145 (March 2010) are "Green" products.

Marking Information



ZN2 = Product Type Marking Code
 YM = Date Code Marking
 Y = Year (ex: X = 2010)
 M = Month (ex: 9 = September)

Date Code Key

Year	2010	2011	2012	2013	2014	2015	2016	2017
Code	X	Y	Z	A	B	C	D	E

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	40	V
Collector-Emitter Voltage	V_{CEO}	40	V
Emitter-Base Voltage	V_{EBO}	5	V
Peak Pulse Collector Current	I_{CM}	3	A
Continuous Collector Current	I_C	2	A
Peak Base Current	I_{BM}	0.3	A

Thermal Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 4)	P_D	600	mW
Thermal Resistance, Junction to Ambient Air (Note 4)	$R_{\theta JA}$	209	$^\circ\text{C/W}$
Thermal Resistance, Junction to Lead (Note 5)	$R_{\theta JC}$	74.95	$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
OFF CHARACTERISTICS						
Collector-Base Breakdown Voltage	BV_{CBO}	40	—	—	V	$I_C = 100\mu\text{A}$
Collector-Emitter Breakdown Voltage (Note 6)	BV_{CEO}	40	—	—	V	$I_C = 10\text{mA}$
Emitter-Base Breakdown Voltage	BV_{EBO}	5	—	—	V	$I_E = 100\mu\text{A}$
Collector-Base Cutoff Current	I_{CBO}	—	—	100	nA	$V_{CB} = 30\text{V}, I_E = 0$
		—	—	50	μA	$V_{CB} = 30\text{V}, I_E = 0, T_A = 150^\circ\text{C}$
Emitter-Base Cutoff Current	I_{EBO}	—	—	100	nA	$V_{EB} = 4\text{V}, I_C = 0$
ON CHARACTERISTICS (Note 6)						
DC Current Gain	h_{FE}	350	—	—	—	$V_{CE} = 2\text{V}, I_C = 0.1\text{A}$
		300	—	—		$V_{CE} = 2\text{V}, I_C = 0.5\text{A}$
		300	—	—		$V_{CE} = 2\text{V}, I_C = 1\text{A}$
		150	—	—		$V_{CE} = 2\text{V}, I_C = 2\text{A}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	—	—	70	mV	$I_C = 100\text{mA}, I_B = 1\text{mA}$
		—	30	100		$I_C = 500\text{mA}, I_B = 50\text{mA}$
		—	—	180		$I_C = 750\text{mA}, I_B = 15\text{mA}$
		—	—	180		$I_C = 1\text{A}, I_B = 50\text{mA}$
		—	—	320		$I_C = 2\text{A}, I_B = 200\text{mA}$
Equivalent On-Resistance	$R_{CE(sat)}$	—	60	200	$\text{m}\Omega$	$I_C = 500\text{mA}, I_B = 50\text{mA}$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	—	—	1.1	V	$I_C = 2\text{A}, I_B = 200\text{mA}$
Base-Emitter Turn-on Voltage	$V_{BE(on)}$	—	—	0.75	V	$V_{CE} = 2\text{V}, I_C = 100\text{mA}$
SMALL SIGNAL CHARACTERISTICS						
Transition Frequency	f_T	100	—	—	MHz	$V_{CE} = 10\text{V}, I_C = 100\text{mA}, f = 100\text{MHz}$
Output Capacitance	C_{ob}	—	—	20	pF	$V_{CB} = 10\text{V}, f = 1\text{MHz}$

- Notes:
- Device mounted on FR-4 PCB with minimum recommended pad layout.
 - Thermal resistance from junction to solder-point (at the end of the collector lead).
 - Measured under pulsed conditions. Pulse width = 300 μs . Duty cycle $\leq 2\%$.

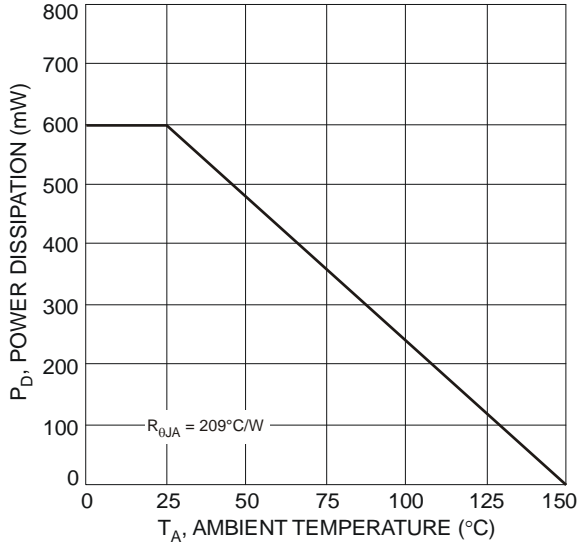


Fig. 1 Power Dissipation vs. Ambient Temperature (Note 4)

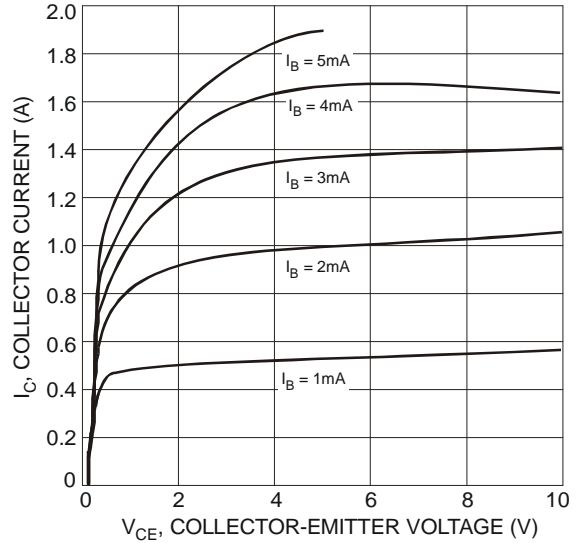


Fig. 2 Typical Collector Current vs. Collector-Emitter Voltage

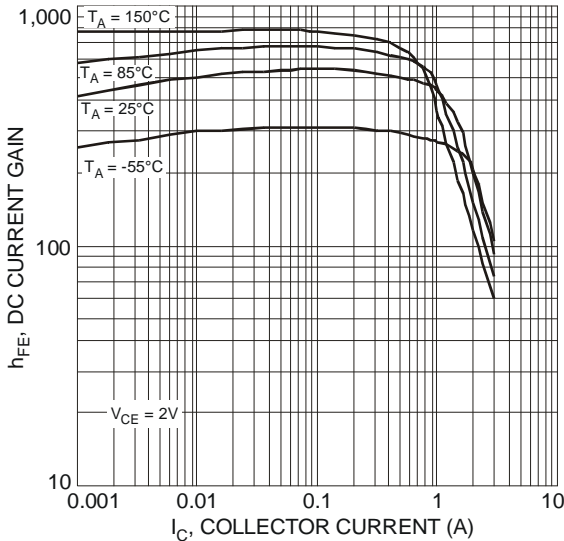


Fig. 3 Typical DC Current Gain vs. Collector Current

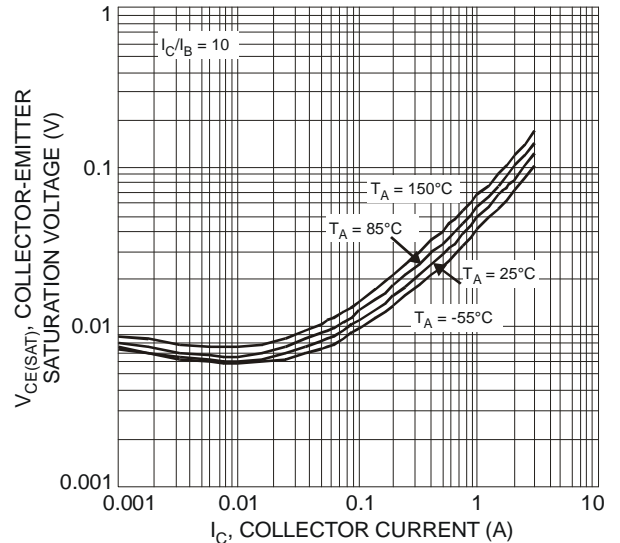


Fig. 4 Typical Collector-Emitter Saturation Voltage vs. Collector Current

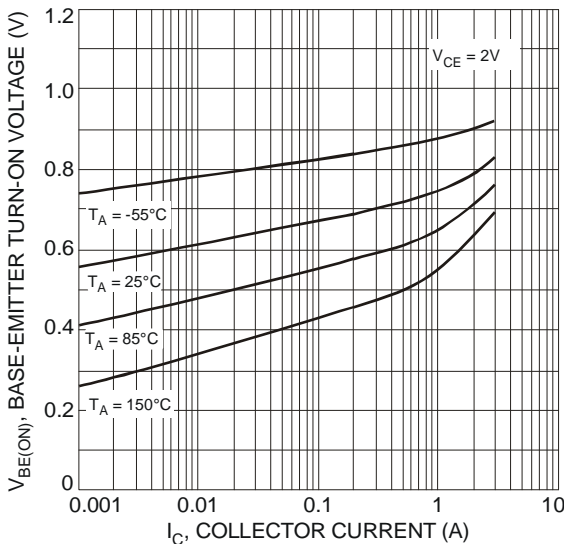


Fig. 5 Typical Base-Emitter Turn-On Voltage vs. Collector Current

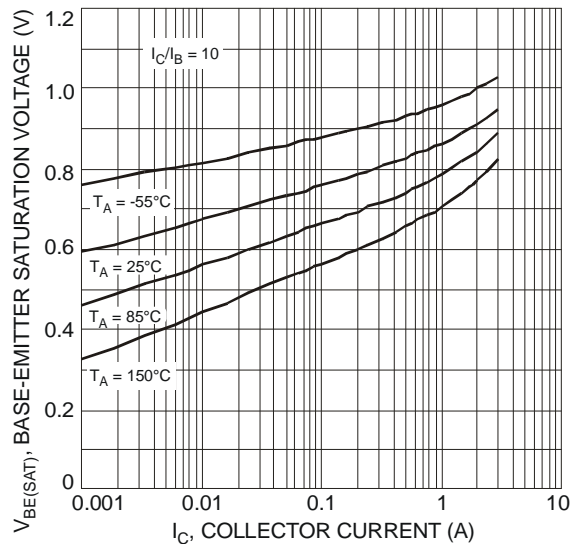


Fig. 6 Typical Base-Emitter Saturation Voltage vs. Collector Current

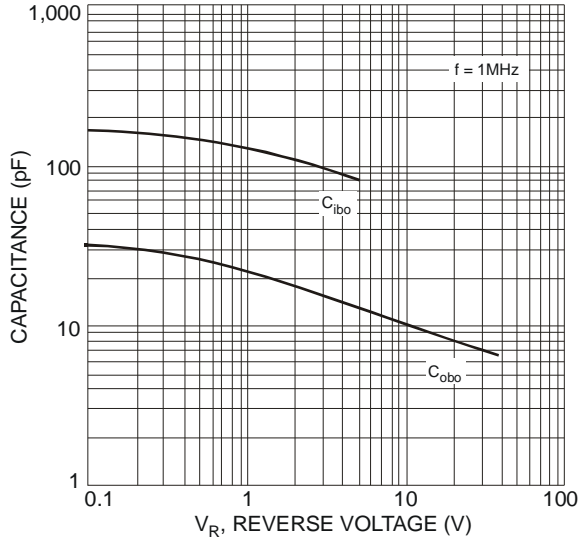


Fig. 7 Typical Capacitance Characteristics

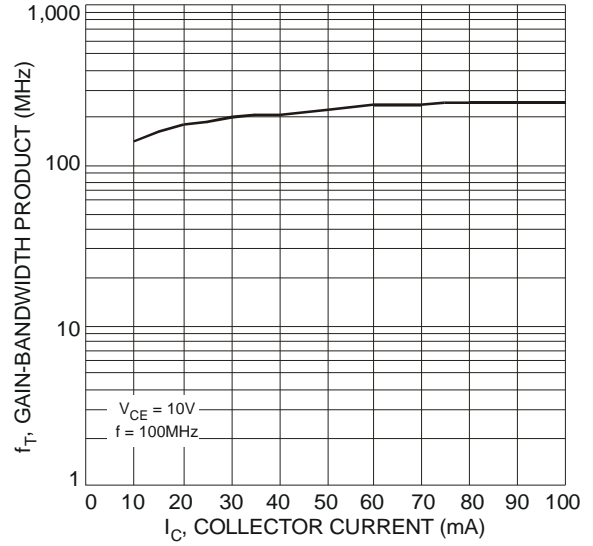
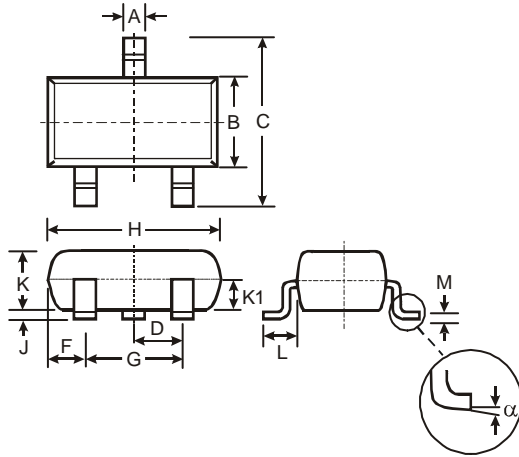


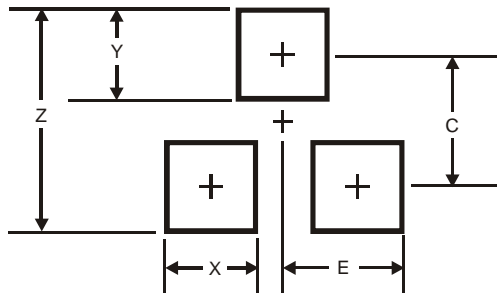
Fig. 8 Typical Gain-Bandwidth Product vs. Collector Current

Package Outline Dimensions



SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.903	1.10	1.00
K1	-	-	0.400
L	0.45	0.61	0.55
M	0.085	0.18	0.11
α	0°	8°	-
All Dimensions in mm			

Suggested Pad Layout



Dimensions	Value (in mm)
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35

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Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)

Факс: 8 (812) 320-02-42

Электронная почта: org@eplast1.ru

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.