

Features

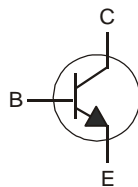
- Epitaxial Planar Die Construction
- Ideal for Low Power Amplification and Switching
- Complementary PNP Type Available (DSS5240Y)
- Ultra Small Surface Mount Package
- **“Lead Free”, RoHS Compliant (Note 1)**
- **Halogen and Antimony Free "Green" Device (Note 2)**
- **ESD rating: 400V-MM, 8KV-HBM**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

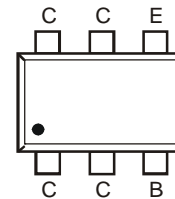
- Case: SOT363
- Case Material: Molded Plastic, “Green” Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin annealed over Copper Plated Alloy 42 leadframe. Solderable per MIL-STD-202, Method 208
- Weight: 0.006 grams (approximate)

SOT363

Top View



Top View
Device Schematic



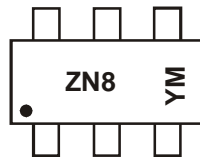
Top View
Pin Out Configuration

Ordering Information (Note 3)

Product	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
DSS4240Y-7	ZN8	7	8mm	3,000

- Notes:
1. No purposefully added lead.
 2. Diode's Inc.'s "Green" policy can be found on our website at <http://www.diodes.com>.
 3. For packaging details, go to our website at <http://www.diodes.com>.

Marking Information



ZN8 = Product Type Marking Code
 YM = Date Code Marking
 Y = Year (ex: V = 2008)
 M = Month (ex: 9 = September)

Date Code Key

Year	2010	2011	2012	2013	2014	2015
Code	X	Y	Z	A	B	C

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°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V _{CB0}	40	V
Collector-Emitter Voltage	V _{CEO}	40	V
Emitter-Base Voltage	V _{EBO}	5	V
Collector Current - Continuous	I _C	2	A
Peak Pulse Collector Current	I _{CM}	3	A
Peak Base Current	I _{BM}	0.3	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 4) @ T _A = 25°C	P _D	625	mW
Thermal Resistance, Junction to Ambient (Note 4) @ T _A = 25°C	R _{θJA}	200	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

Notes: 4. Device mounted on FR-4 PCB, with minimum recommended pad layout.

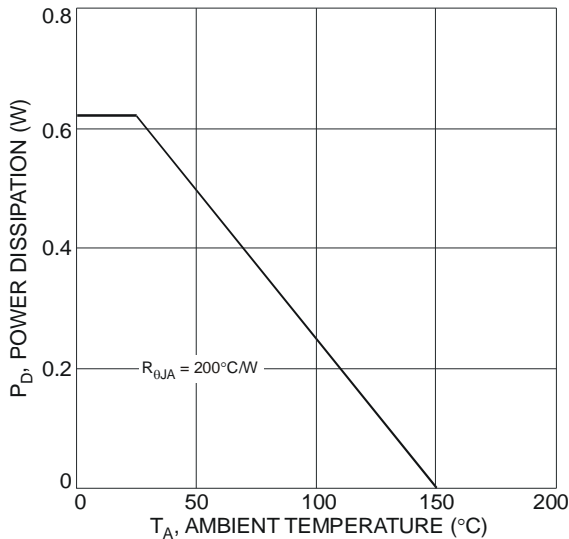


Fig. 1 Power Dissipation vs. Ambient Temperature (Note 3)

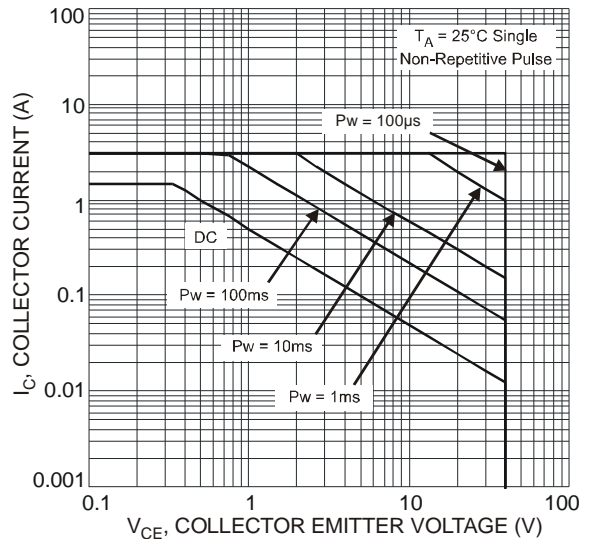


Fig. 2 Safe Operating Area

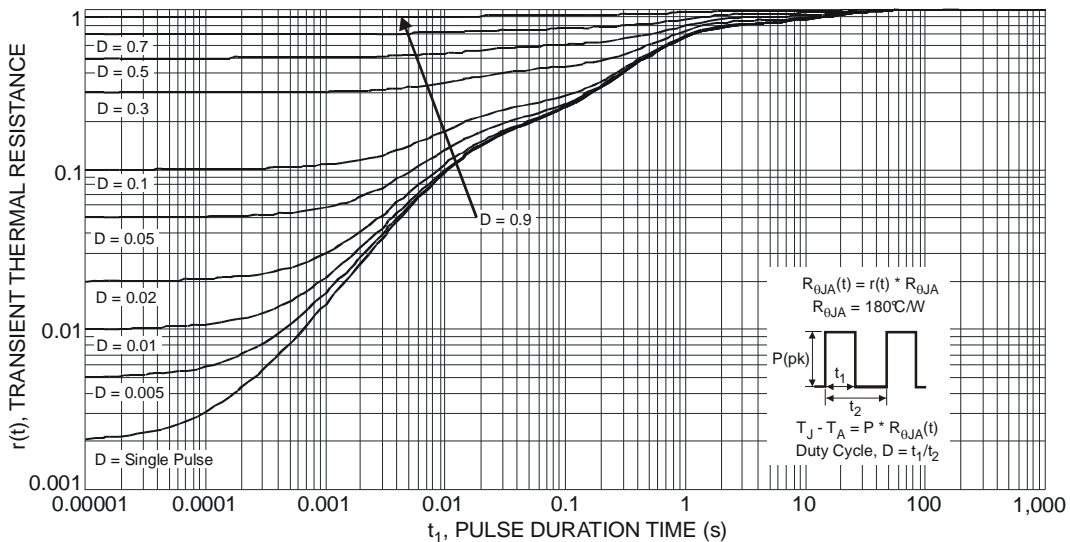


Fig. 3 Transient Thermal Response

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	40	150	—	V	$I_C = 100\mu\text{A}, I_E = 0$
Collector-Emitter Breakdown Voltage (Note 5)	BV_{CEO}	40	55	—	V	$I_C = 10\text{mA}, I_B = 0$
Emitter-Base Breakdown Voltage	BV_{EBO}	5	8.5	—	V	$I_E = 100\mu\text{A}, I_C = 0$
Collector Cutoff Current	I_{CBO}	—	—	100 50	nA μA	$V_{CB} = 30\text{V}, I_E = 0$ $V_{CB} = 30\text{V}, I_E = 0, T_A = 150^\circ\text{C}$
Emitter Cutoff Current	I_{EBO}	—	—	100	nA	$V_{EB} = 4\text{V}, I_C = 0$
DC Current Gain (Note 5)	h_{FE}	350 300 300 150	— — — —	— — — —	—	$V_{CE} = 2\text{V}, I_C = 100\text{mA}$ $V_{CE} = 2\text{V}, I_C = 500\text{mA}$ $V_{CE} = 2\text{V}, I_C = 1\text{A}$ $V_{CE} = 2\text{V}, I_C = 2\text{A}$
Collector-Emitter Saturation Voltage (Note 5)	$V_{CE(sat)}$	— — — — —	45 52 100 105 190	70 100 180 180 320	mV	$I_C = 100\text{mA}, I_B = 1\text{mA}$ $I_C = 500\text{mA}, I_B = 50\text{mA}$ $I_C = 750\text{mA}, I_B = 15\text{mA}$ $I_C = 1\text{A}, I_B = 50\text{mA}$ $I_C = 2\text{A}, I_B = 200\text{mA}$
Collector-Emitter Saturation Resistance	$R_{CE(sat)}$	—	105	200	m Ω	$I_C = 500\text{mA}, I_B = 50\text{mA}$
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	$V_{CE} = 2\text{V}, I_C = 100\text{mA}$
Output Capacitance	C_{obo}	—	—	20	pF	$V_{CB} = 10\text{V}, f = 1.0\text{MHz}$
Current Gain-Bandwidth Product	f_T	100	250	—	MHz	$V_{CE} = 10\text{V}, I_C = 50\text{mA}, f = 100\text{MHz}$
Turn-On Time	t_{on}	—	64	—	ns	$V_{CC} = 10\text{V}$ $I_C = 1\text{A}, I_{B1} = -I_{B2} = 50\text{mA}$
Delay Time	t_d	—	20	—	ns	
Rise Time	t_r	—	44	—	ns	
Turn-Off Time	t_{off}	—	315	—	ns	
Storage Time	t_s	—	275	—	ns	
Fall Time	t_f	—	40	—	ns	

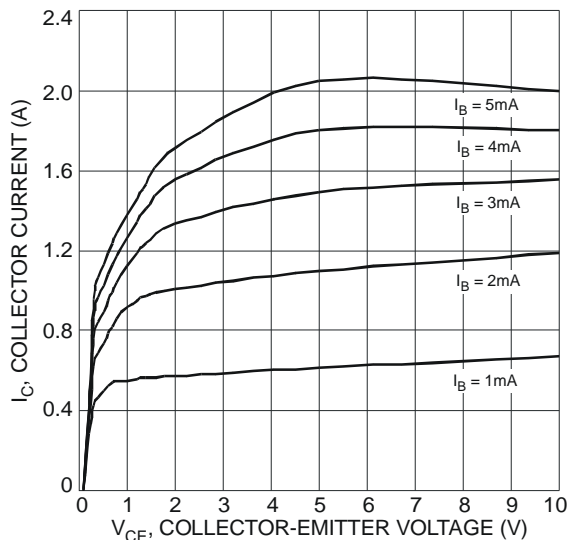
 Notes: 5. Measured under pulsed conditions. Pulse width = 300 μs . Duty cycle $\leq 2\%$.


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

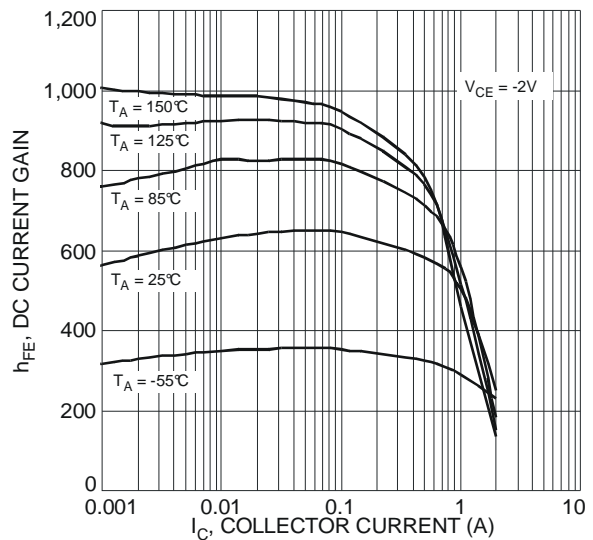


Fig. 5 Typical DC Current Gain vs. Collector Current

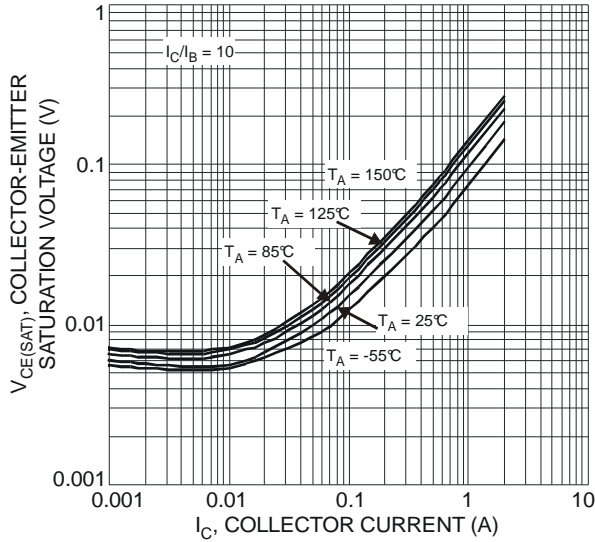


Fig. 6 Typical Collector-Emitter Saturation Voltage vs. Collector Current

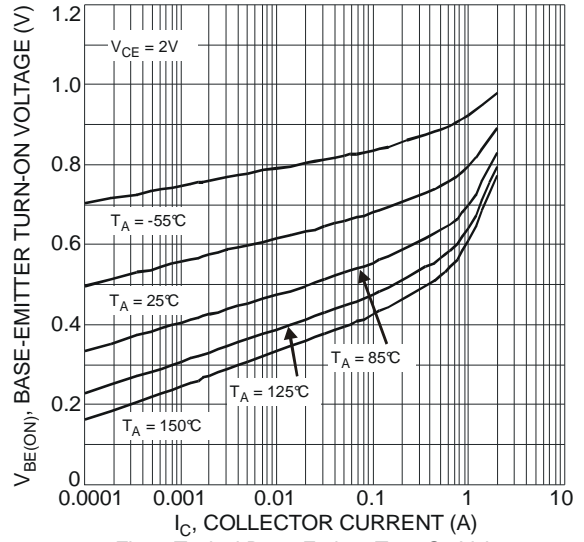


Fig. 7 Typical Base-Emitter Turn-On Voltage vs. Collector Current

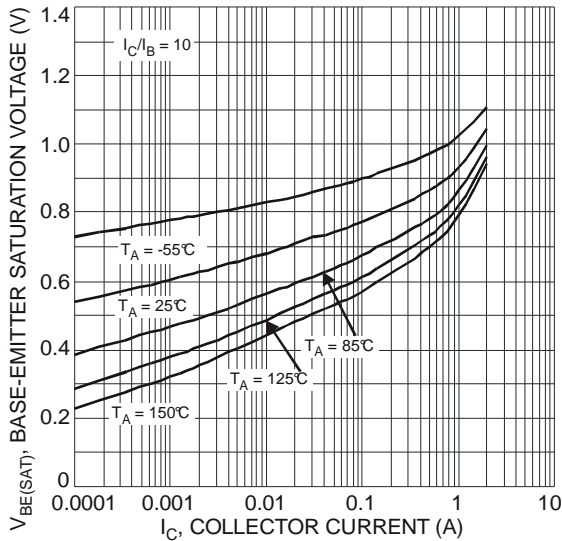


Fig. 8 Typical Base-Emitter Saturation Voltage vs. Collector Current

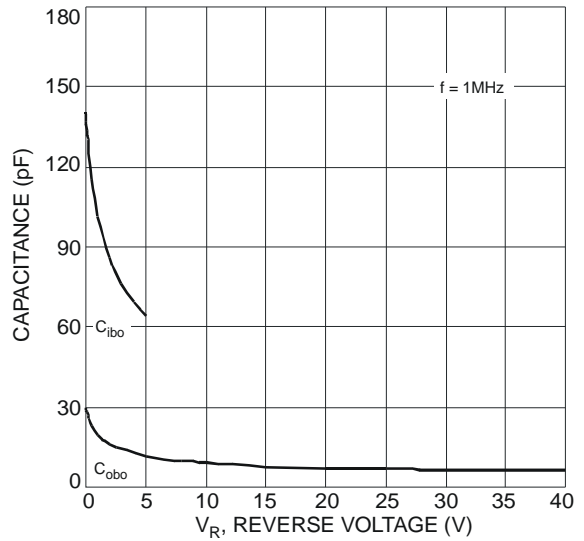
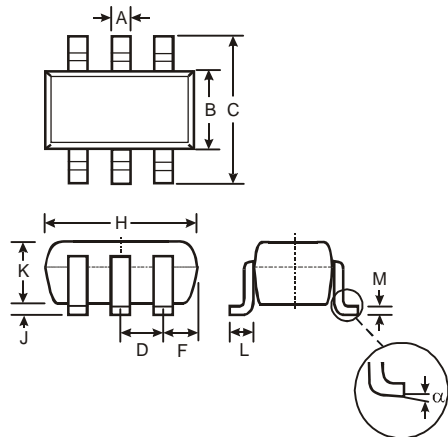


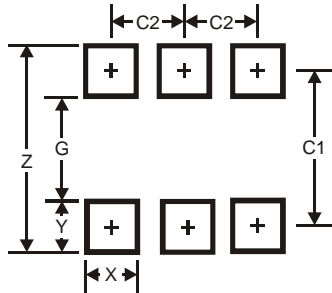
Fig. 9 Typical Capacitance Characteristics

Package Outline Dimensions



SOT363		
Dim	Min	Max
A	0.10	0.30
B	1.15	1.35
C	2.00	2.20
D	0.65 Typ	
F	0.40	0.45
H	1.80	2.20
J	0	0.10
K	0.90	1.00
L	0.25	0.40
M	0.10	0.22
α	0°	8°
All Dimensions in mm		

Suggested Pad Layout



Dimensions	Value (in mm)
Z	2.5
G	1.3
X	0.42
Y	0.6
C1	1.9
C2	0.65

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