Lead-free Green

DMMT2907A

60V DUAL PNP SMALL SIGNAL SURFACE MOUNT TRANSISTOR

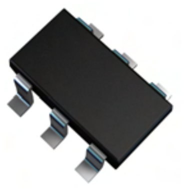
Features & Benefits

- BV_{CEO} > -60V
- I_{CM} = -1A Peak Pulse Current
- General purpose NPN transistors ideally suited for low power amplification and switching applications
- Dual transistors in a single SOT26 package taking half the footprint of two equivalent transistors in SOT23
- Epitaxial planar die construction
- **"Lead Free", RoHS Compliant (Note 1)**
- **Halogen and Antimony Free. "Green" Device (Note 2)**
- **Qualified to AEC-Q101 Standards for High Reliability**

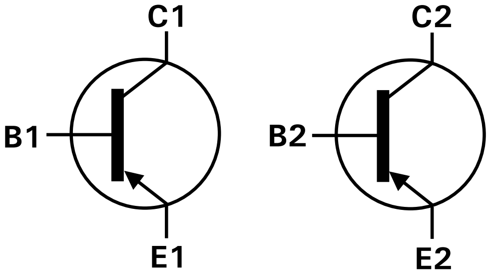
Mechanical Data

- Case: SOT26
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating: Matte Tin Finish annealed over Copper leadframe
- Weight: 0.015 grams (approximate)

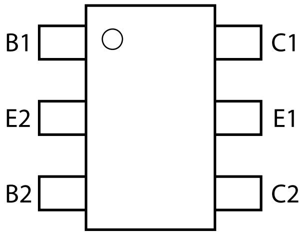
SOT26



Top View



Device Symbol



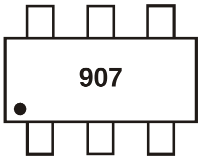
Top View
Pin-Out

Ordering Information (Note 3)

Product	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
DMMT2907A-7	907	7	8	3,000

Notes:
1. No purposefully added lead.
2. Diodes 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



907 = Product Type Marking Code

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Maximum Ratings @T_A = 25°C unless otherwise specified

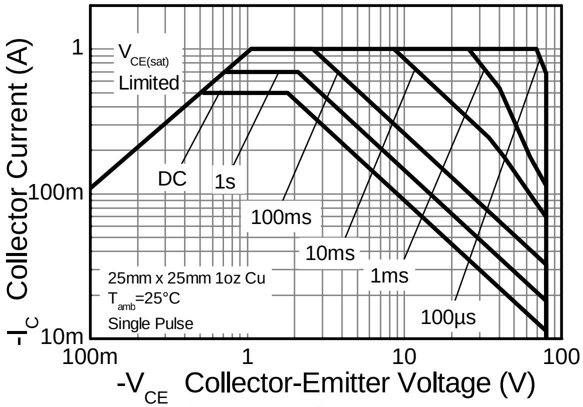
Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-60	V
Collector-Emitter Voltage	V_{CEO}	-60	V
Emitter-Base Voltage	V_{EBO}	-5	V
Continuous Collector Current	I_C	-600	mA
Peak Pulsed Collector Current	I_{CM}	-1	A

Thermal Characteristics @T_A = 25°C unless otherwise specified

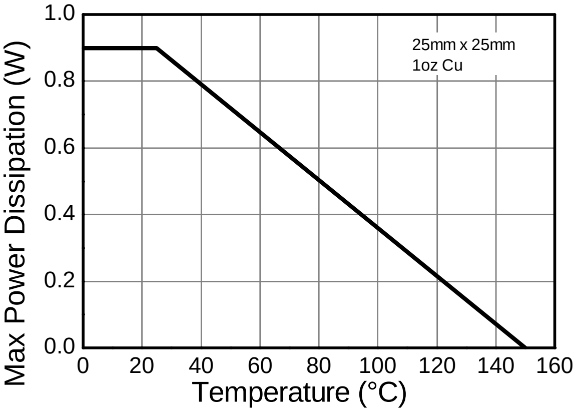
Characteristic		Symbol	Value	Unit
Power Dissipation Linear Derating Factor	(Notes 5 & 6)	P_D	1.28 10.3	W mW/°C
	(Notes 4 & 6)		0.90 7.14	
Thermal Resistance, Junction to Ambient	(Notes 5 & 6)	$R_{\theta JA}$	97	°C/W
	(Notes 4 & 6)		140	
Thermal Resistance, Junction to Lead	(Note 7)	$R_{\theta JL}$	113	
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to +150	°C

Notes:
4. For a device surface mounted on 25mm x 25mm x 1.6mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions; the device is measured when operating in a steady-state condition.
5. Same as note (4), except the device is measured at $t \leq 5$ sec.
6. For a dual device with one active die.
7. Thermal resistance from junction to solder-point (at the end of the collector lead).

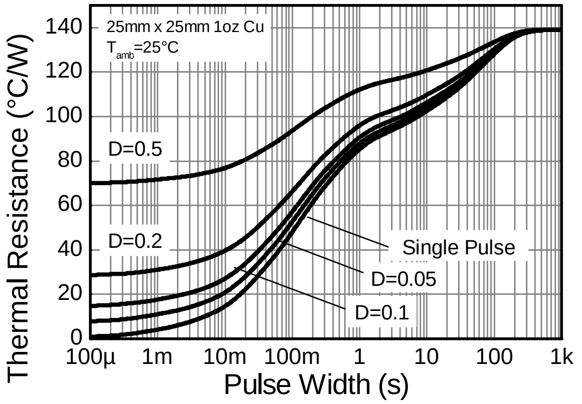
Thermal Characteristics



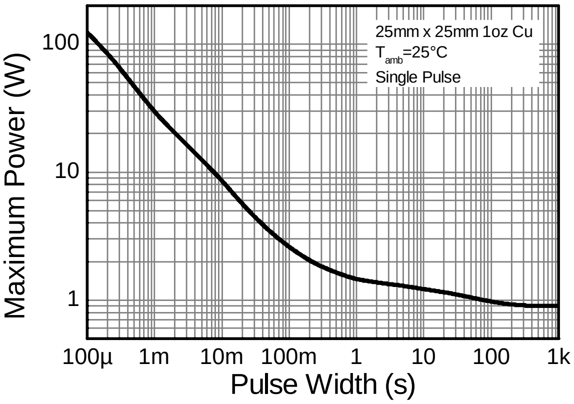
Safe Operating Area



Derating Curve



Transient Thermal Impedance



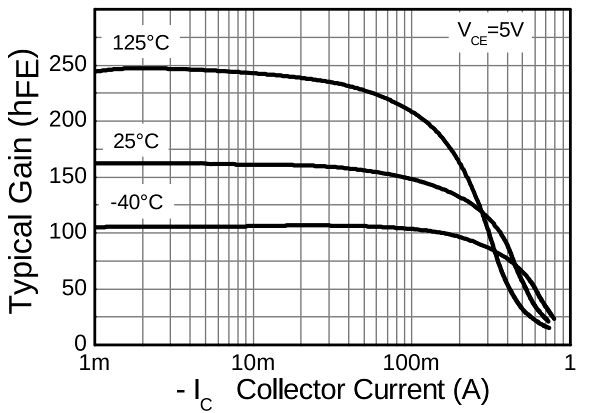
Pulse Power Dissipation

Electrical Characteristics @T_A = 25°C unless otherwise specified

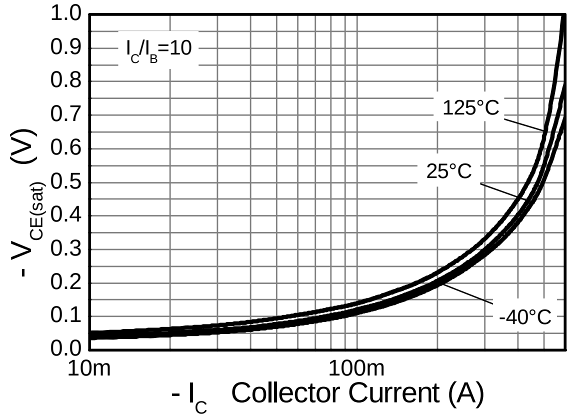
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS						
Collector-Base Breakdown Voltage	BV_{CBO}	-60	—	—	V	I_C = -10µA, I_E = 0
Collector-Emitter Breakdown Voltage (Note 8)	BV_{CEO}	-60	—	—	V	I_C = -10mA, I_B = 0
Emitter-Base Breakdown Voltage	BV_{EBO}	-5	—	—	V	I_E = -10µA, I_C = 0
Collector-Base Cutoff Current	I_{CBO}	—	—	-10	nA	V_{CB} = -50V, I_E = 0
		—	—	-10	µA	V_{CB} = -50V, I_E = 0, T_A = 150°C
Collector-Emitter Cutoff Current	I_{CEV}	—	—	±50	nA	V_{CE} = -30V, V_{BE} = ±0.25V
Base-Emitter Cutoff Current	I_{BEV}	—	—	±50	nA	V_{CE} = -30V, V_{BE} = ±0.25V
ON CHARACTERISTICS (Note 8)						
DC Current Gain	h_{FE}	75	—	—	—	I_C = -100µA, V_{CE} = -10V
		100	—	—		I_C = -1.0mA, V_{CE} = -10V
		100	—	—		I_C = -10mA, V_{CE} = -10V
		100	—	300		I_C = -150mA, V_{CE} = -10V
		50	—	—		I_C = -500mA, V_{CE} = -10V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	—	—	-0.4	V	I_C = -150mA, I_B = -15mA
		—	—	-1.6		I_C = -500mA, I_B = -50mA
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	—	—	-1.3	V	I_C = -150mA, I_B = -15mA
		—	—	-2.6		I_C = -500mA, I_B = -50mA
SMALL SIGNAL CHARACTERISTICS						
Output Capacitance	C_{obo}	—	5.2	—	pF	V_{CB} = -10V, f = 1.0MHz, I_E = 0mA
Input Capacitance	C_{ibo}	—	16.3	—	pF	V_{EB} = -2.0V, f = 1.0MHz, I_C = 0mA
Current Gain-Bandwidth Product	f_T	200	307	—	MHz	V_{CE} = -2V, I_C = -10mA, f = 100MHz
Turn-On Time	t_{on}	—	—	21	ns	V_{CC} = -30V I_C = -150mA, I_{B1} = -15mA
Delay Time	t_d	—	—	5.5	ns	
Rise Time	t_r	—	—	15.3	ns	
Turn-Off Time	t_{off}	—	—	200	ns	V_{CC} = -6V I_C = -150mA, I_{B1} = I_{B2} = -15mA
Storage Time	t_s	—	—	160	ns	
Fall Time	t_f	—	—	40	ns	

Notes: 8. Measured under pulsed conditions. Pulse width ≤ 300µs. Duty cycle ≤ 2%.

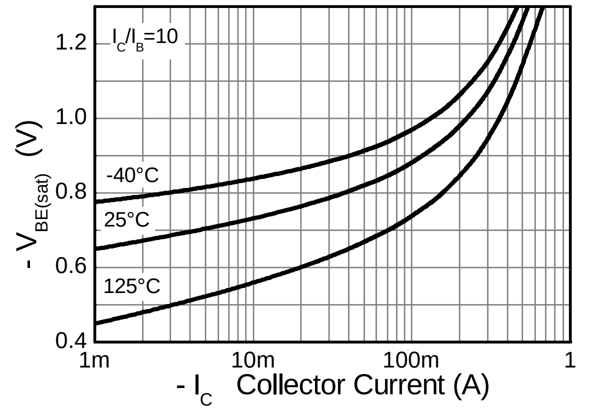
Typical Electrical Characteristics



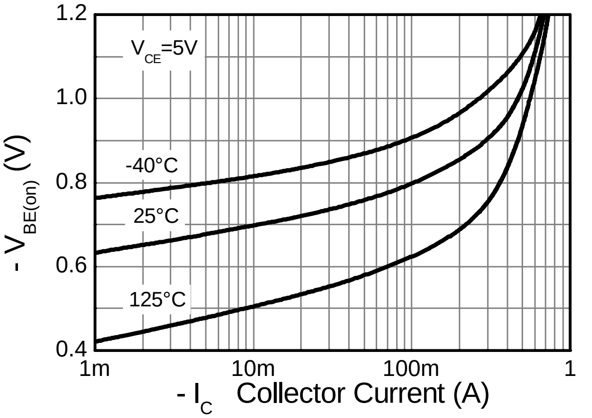
h_{FE} v I_C



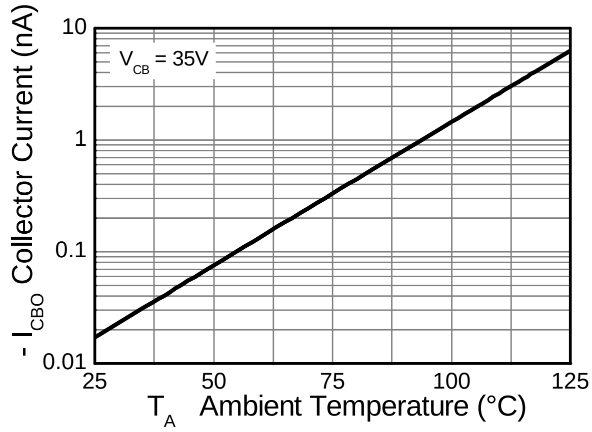
$V_{CE(sat)}$ v I_C



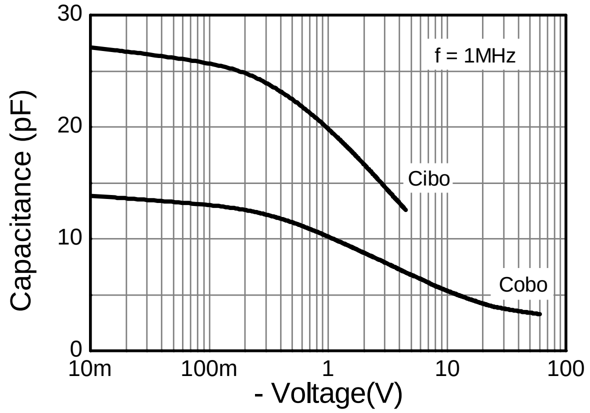
$V_{BE(sat)}$ v I_C



$V_{BE(on)}$ v I_C

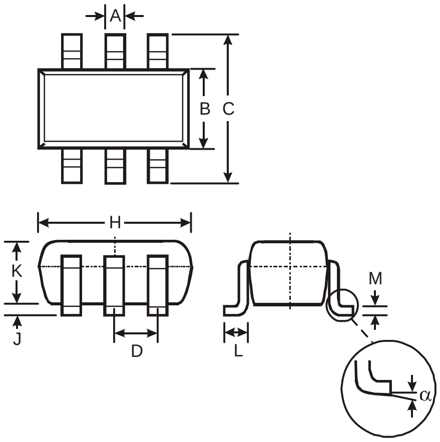


I_{CBO} v T_A



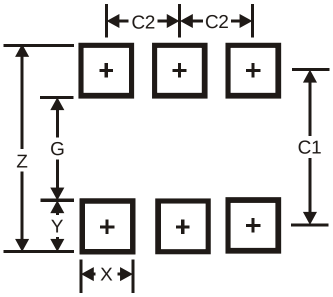
Capacitance v Voltage

Package Outline Dimensions



SOT26			
Dim	**Min**	**Max**	**Typ**
A	0.35	0.50	0.38
B	1.50	1.70	1.60
C	2.70	3.00	2.80
D	—	—	0.95
H	2.90	3.10	3.00
J	0.013	0.10	0.05
K	1.00	1.30	1.10
L	0.35	0.55	0.40
M	0.10	0.20	0.15
α	0°	8°	—
All Dimensions in mm			

Suggested Pad Layout



Dimensions	Value (in mm)
Z	3.20
G	1.60
X	0.55
Y	0.80
C1	2.40
C2	0.95

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