FMMTL718TA Datasheet

https://www.DiGi-Electronics.com

DiGi Electronics Part Number	FMMTL718TA-DG
Manufacturer	Diodes Incorporated
Manufacturer Product Number	FMMTL718TA
Description	TRANS PNP 20V 1A SOT23-3
Detailed Description	Bipolar (BJT) Transistor PNP 20 V 1 A 265MHz 500 m W Surface Mount SOT-23-3

Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
FMMTL718TA	Diodes Incorporated
Series:	Product Status:
-	Active
Transistor Type:	Current - Collector (Ic) (Max):
PNP	1 A
Voltage - Collector Emitter Breakdown (Max):	Vce Saturation (Max) @ Ib, Ic:
20 V	450mV @ 100mA, 1.5A
Current - Collector Cutoff (Max):	DC Current Gain (hFE) (Min) @ Ic, Vce:
10nA	200 @ 500mA, 2V
Power - Max:	Frequency - Transition:
500 mW	265MHz
Operating Temperature:	Mounting Type:
-55°C ~ 150°C (TJ)	Surface Mount
Package / Case:	Supplier Device Package:
TO-236-3, SC-59, SOT-23-3	SOT-23-3
Base Product Number:	
FMMTL718	

Environmental & Export classification

RoHS Status:	Moisture Sensitivity Level (MSL):
ROHS3 Compliant	1 (Unlimited)
REACH Status:	ECCN:
REACH Unaffected	EAR99
HTSUS:	
8541.21.0075	

A Product Line of
Diodes Incorporated

Lead-free Green

FMMTL718

20V PNP SILICON LOW SATURATION TRANSISTOR IN SOT23

Features and Benefits

- BV_{CEO} > -20V
- I_C = -1A Continuous Collector Current
- I_{CM} = -2A Peak Pulse Current
- Low Saturation Voltage $V_{CE(sat)}$ < -320mV @ -1A
- h_{FE} characterised up to -1.5A for high current gain hold-up
- 500mW power dissipation
- Complementary part number FMMTL618
- **Lead Free, RoHS Compliant (Note 1)**
- **Halogen and Antimony Free "Green" Device (Note 2)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

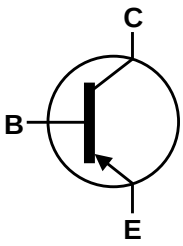
- Case: SOT-23
- UL Flammability Rating 94V-0
- Case material: molded Plastic.
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals: Matte Tin Finish annealed over Copper plated Alloy 42 leadframe. Solderable per MIL-STD-202, Method 208
- Weight: 0.008 grams (Approximate)

Applications

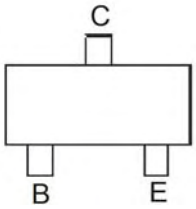
- MOSFET Gate Driving
- DC-DC Converters
- Charging circuit
- Power switches

SOT23

Top View



Device Symbol



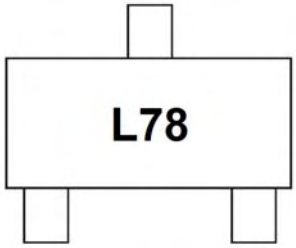
Top View
Pin-Out

Ordering Information (Note 3)

Product	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
FMMTL718TA	L78	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



L78 = Product Type Marking Code

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-20	V
Collector-Emitter Voltage	V_{CEO}	-20	V
Emitter-Base Voltage	V_{EBO}	-5	V
Continuous Collector Current	I_C	-1	A
Peak Pulse Current	I_{CM}	-2	A
Base Current	I_B	-200	mA

Thermal Characteristics @T_A = 25°C unless otherwise specified

Characteristic		Symbol	Value	Unit
Power Dissipation	(Note 4)	P_D	500	mW
Thermal Resistance, Junction to Ambient	(Note 4)	$R_{\theta JA}$	250	°C/W
Thermal Resistance, Junction to Lead	(Note 5)	$R_{\theta JL}$	197	°C/W
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to +150	°C

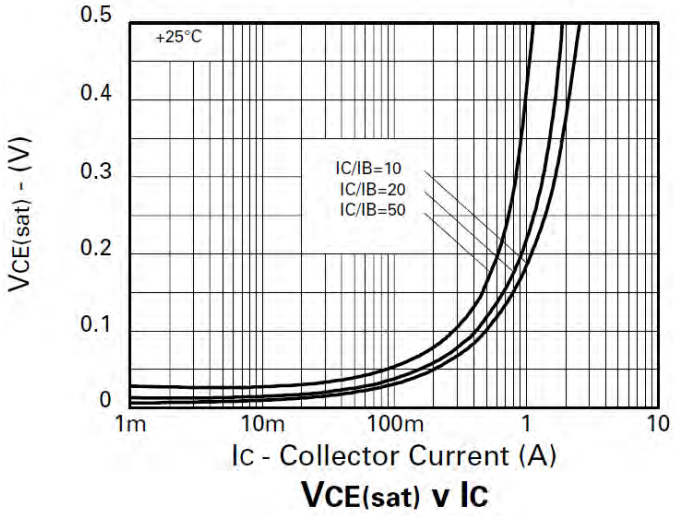
Notes: 4. For a device surface mounted on 15mm X 15mm FR4 PCB with high coverage of single sided 1 oz copper, in still air conditions; the device is measured when operating in a steady-state condition.
5. Thermal resistance from junction to solder-point (at the end of the collector lead).

Electrical Characteristics @T_A = 25°C unless otherwise specified

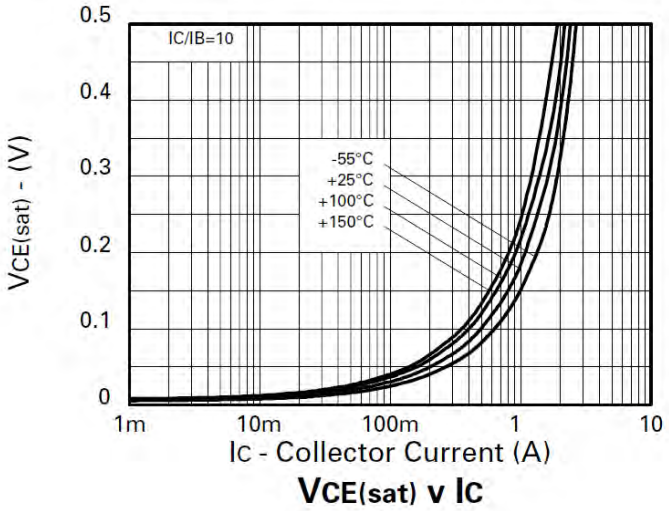
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	-20	-65		V	I_C = -100 µA
Collector-Emitter Breakdown Voltage (Note 6)	BV_{CEO}	-20	-55		V	I_C = -10 mA
Emitter-Base Breakdown Voltage	BV_{EBO}	-5	-8.8		V	I_E = -100 µA
Collector Cutoff Current	I_{CBO}			-10	nA	V_{CB} = -15V
Emitter Cutoff Current	I_{EBO}			-10	nA	V_{EB} = -4V
Collector Emitter Cutoff Current	I_{CES}			-10	nA	V_{CE}= -15V
Static Forward Current Transfer Ratio (Note 6)	h_{FE}	300 300 200 120 50	500 450 320 200 80			I_C = -10mA, V_{CE} = -2V I_C = -100mA, V_{CE} = -2V I_C = -0.5A, V_{CE} = -2V I_C = -1A, V_{CE} = -2V I_C = -1.5A, V_{CE} = -2V
Collector-Emitter Saturation Voltage (Note 6)	$V_{CE(sat)}$		-33 -130 -230 -315	-50 -180 -320 -450	mV mV mV mV	I_C =- 100mA, I_B = -10mA I_C =- 500mA, I_B = -20mA I_C = -1A, I_B = -50mA I_C = -1.5A, I_B = -100mA
Base-Emitter Turn-On Voltage(Note 6)	$V_{BE(on)}$		-0.85	-1.0	V	I_C = -1.25A, V_{CE} = -2V
Base-Emitter Saturation Voltage(Note 6)	$V_{BE(sat)}$		-0.95	-1.1	V	I_C = -1.25A, I_B = -100mA
Equivalent On-Resistance	$R_{CE(sat)}$		210		mΩ	I_C = -1.5A
Output Capacitance	C_{obo}		9	12	pF	V_{CB} = -10V, f = 1MHz
Transition Frequency	f_T		265		MHz	V_{CE} = -10V, I_C = -50mA, f = 100MHz
Turn-On Time	t_{on}		108		ns	V_{CC}=-10V, I_C =-1A
Turn-Off Time	t_{off}		121		ns	I_{B1} = I_{B2} = -10mA

Note: 6. Measured under pulsed conditions. Pulse width ≤ 300 µs. Duty cycle ≤ 2%

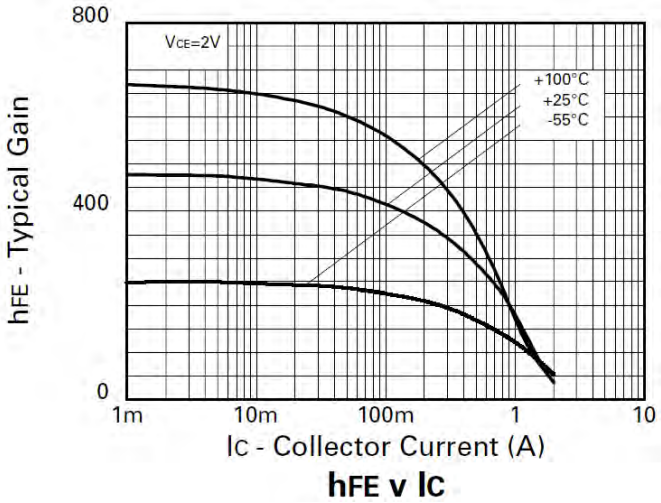
Typical Electrical Characteristics



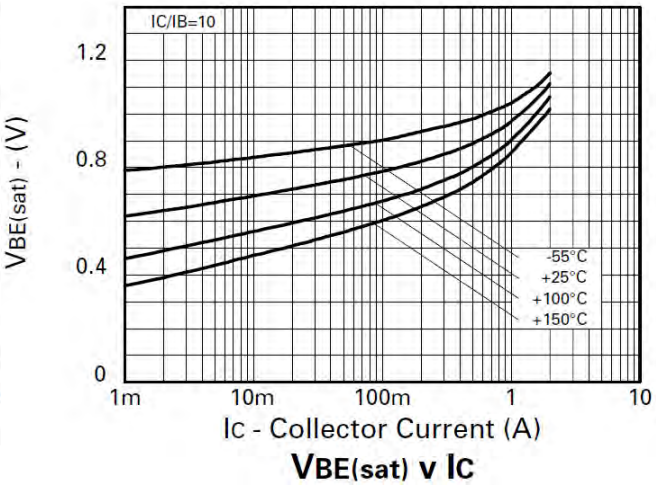
VCE(sat) v IC



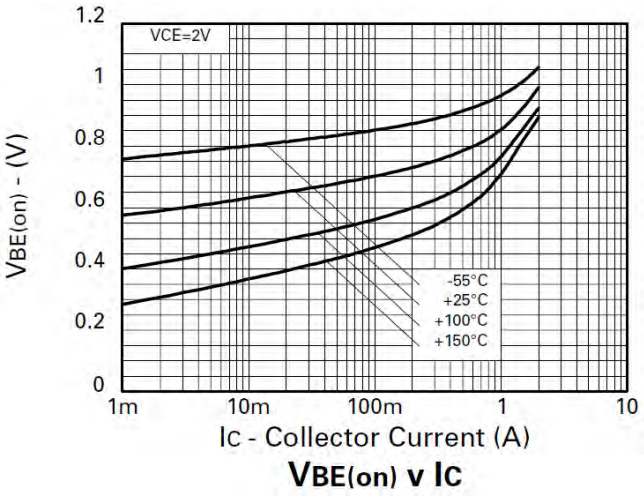
VCE(sat) v IC



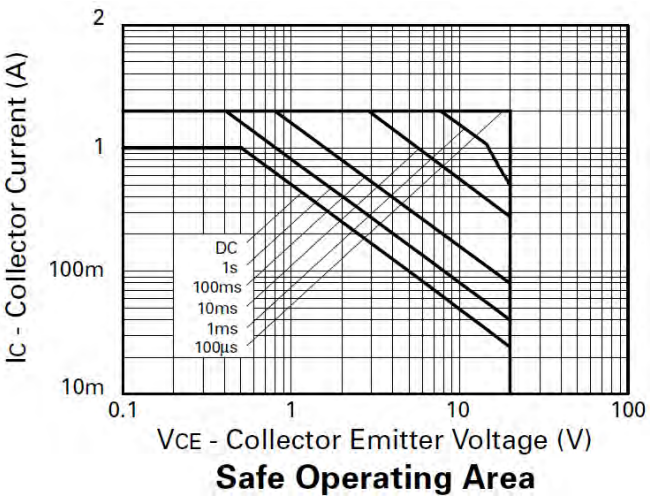
hFE v IC



VBE(sat) v IC

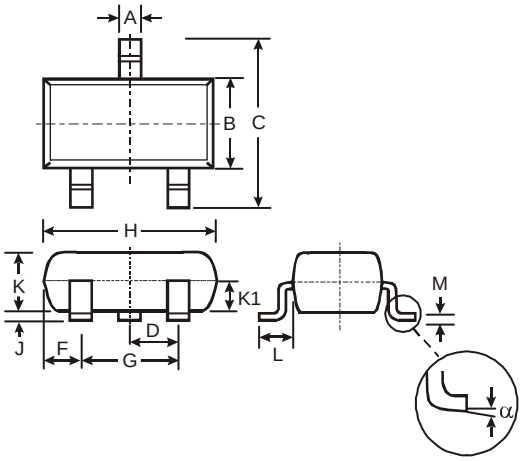


VBE(on) v IC



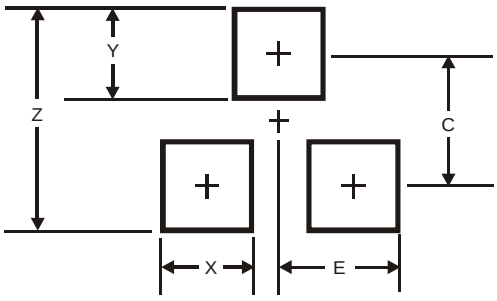
Safe Operating Area

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

IMPORTANT NOTICE

DIODES INCORPORATED MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARDS TO THIS DOCUMENT, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION).

Diodes Incorporated and its subsidiaries reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to this document and any product described herein. Diodes Incorporated does not assume any liability arising out of the application or use of this document or any product described herein; neither does Diodes Incorporated convey any license under its patent or trademark rights, nor the rights of others. Any Customer or user of this document or products described herein in such applications shall assume all risks of such use and will agree to hold Diodes Incorporated and all the companies whose products are represented on Diodes Incorporated website, harmless against all damages.

Diodes Incorporated does not warrant or accept any liability whatsoever in respect of any products purchased through unauthorized sales channel. Should Customers purchase or use Diodes Incorporated products for any unintended or unauthorized application, Customers shall indemnify and hold Diodes Incorporated and its representatives harmless against all claims, damages, expenses, and attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized application.

Products described herein may be covered by one or more United States, international or foreign patents pending. Product names and markings noted herein may also be covered by one or more United States, international or foreign trademarks.

LIFE SUPPORT

Diodes Incorporated products are specifically not authorized for use as critical components in life support devices or systems without the express written approval of the Chief Executive Officer of Diodes Incorporated. As used herein:

A. Life support devices or systems are devices or systems which:

   1. are intended to implant into the body, or
   2. support or sustain life and whose failure to perform when properly used in accordance with instructions for use provided in the labeling can be reasonably expected to result in significant injury to the user.

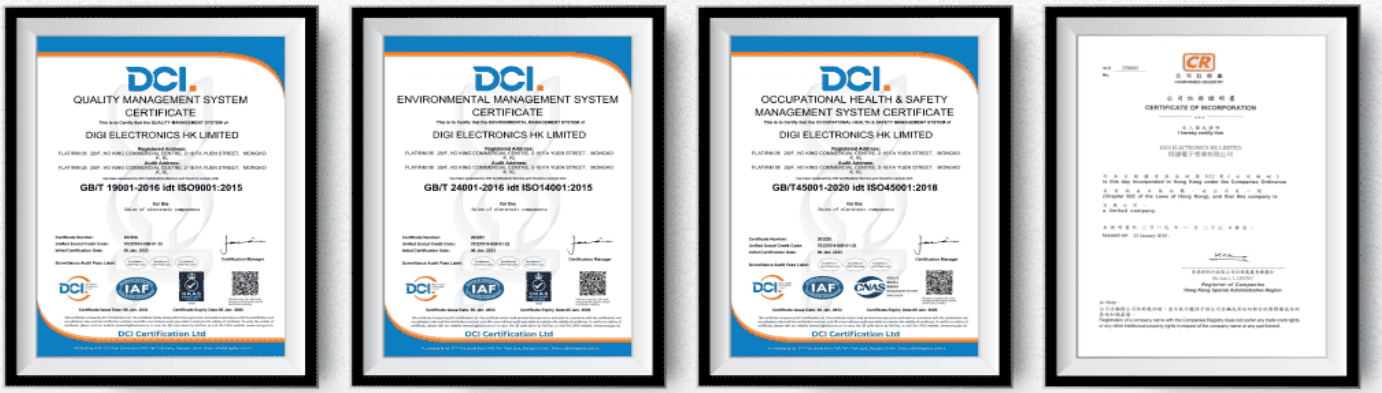
B. A critical component is any component in a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or to affect its safety or effectiveness.

Customers represent that they have all necessary expertise in the safety and regulatory ramifications of their life support devices or systems, and acknowledge and agree that they are solely responsible for all legal, regulatory and safety-related requirements concerning their products and any use of Diodes Incorporated products in such safety-critical, life support devices or systems, notwithstanding any devices- or systems-related information or support that may be provided by Diodes Incorporated. Further, Customers must fully indemnify Diodes Incorporated and its representatives against any damages arising out of the use of Diodes Incorporated products in such safety-critical, life support devices or systems.

www.diodes.com

OUR CERTIFICATE

DiGi provide top-quality products and perfect service for customer worldwide through standardization, technological innovation and continuous improvement. DiGi through third-party certification, we striciy control the quality of products and services. Welcome your RFQ to Email: Info@DiGi-Electronics.com



Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

DiGi is a global authorized distributor of electronic components.