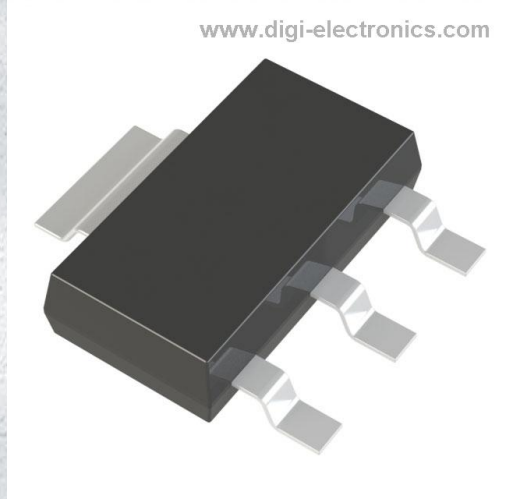
FZT1151ATA Datasheet



https://www.DiGi-Electronics.com

DiGi Electronics Part Number	FZT1151ATA-DG
Manufacturer	Diodes Incorporated
Manufacturer Product Number	FZT1151ATA
Description	TRANS PNP 40V 3A SOT223-3
Detailed Description	Bipolar (BJT) Transistor PNP 40 V 3 A 145MHz 2.5 W Surface Mount SOT-223-3

Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
FZT1151ATA	Diodes Incorporated
Series:	Product Status:
-	Active
Transistor Type:	Current - Collector (Ic) (Max):
PNP	3 A
Voltage - Collector Emitter Breakdown (Max):	Vce Saturation (Max) @ Ib, Ic:
40 V	300mV @ 250mA, 3A
Current - Collector Cutoff (Max):	DC Current Gain (hFE) (Min) @ Ic, Vce:
100nA	250 @ 500mA, 2V
Power - Max:	Frequency - Transition:
2.5 W	145MHz
Operating Temperature:	Mounting Type:
-55°C ~ 150°C (TJ)	Surface Mount
Package / Case:	Supplier Device Package:
TO-261-4, TO-261AA	SOT-223-3
Base Product Number:	
FZT1151	

Environmental & Export classification

RoHS Status:	Moisture Sensitivity Level (MSL):
ROHS3 Compliant	1 (Unlimited)
REACH Status:	ECCN:
REACH Unaffected	EAR99
HTSUS:	
8541.29.0075	

FZT1151A

40V PNP MEDIUM POWER TRANSISTOR IN SOT223

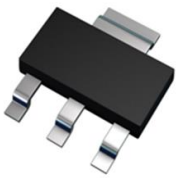
Features

- BV_{CEO} > -40V
- I_C = -3A High Continuous Collector Current
- I_{CM} = -5A Peak Pulse Current
- Low Saturation Voltage $V_{CE(sat)}$ < -140mV @ -1A
- h_{FE} Specified up to -5A for a High Gain Hold-Up
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e.: parts qualified to AEC-Q100/101/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please refer to the related automotive grade (Q-suffix) part. A listing can be found at https://www.diodes.com/products/automotive/automotive-products/.**
- **This part is qualified to JEDEC standards (as references in AEC-Q) for High Reliability. https://www.diodes.com/quality/product-definitions/**

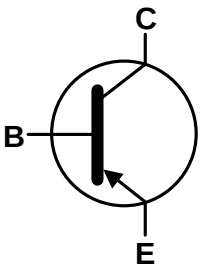
Mechanical Data

- Case: SOT223
- Case Material: Molded Plastic. "Green" Molding Compound; UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 e3
- Weight: 0.112 grams (Approximate)

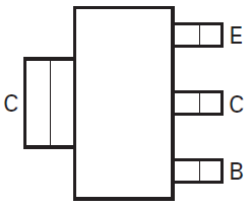
SOT223 (Type DN)



Top View



Device Symbol



Top View
Pin-Out

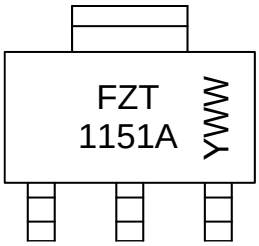
Ordering Information (Note 4)

Part Number	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity per Reel
FZT1151ATA	AEC-Q101	FZT1151A	7	12	1,000

Notes:
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
2. See https://www.diodes.com/quality/lead-free/ for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. For packaging details, go to our website at https://www.diodes.com/design/support/packaging/diodes-packaging/.

Marking Information

SOT223 (Type DN)



FZT 1151A = Product Type Marking Code
YWW = Date Code Marking
Y or $\overline{Y}$ = Last Digit of Year (ex: 0 = 2020)
WW or $\overline{WW}$ = Week Code (01 to 53)

Absolute Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-45	V
Collector-Emitter Voltage	V_{CEO}	-40	V
Emitter-Base Voltage	V_{EBO}	-7	V
Continuous Collector Current	I_C	-3	A
Peak Pulse Current	I_{CM}	-5	A

Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

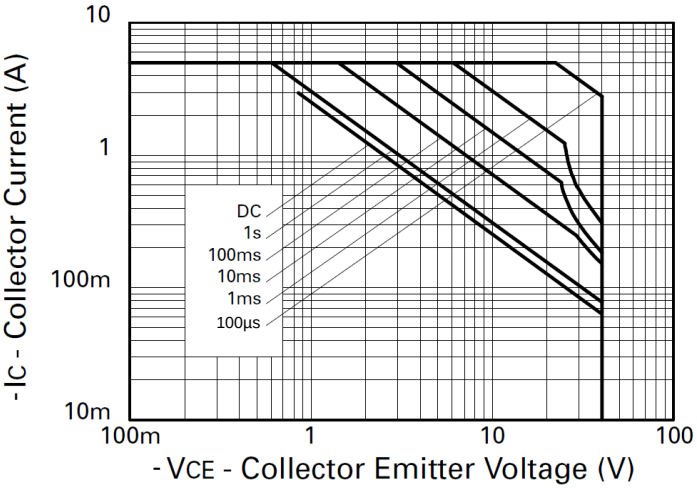
Characteristic		Symbol	Value	Unit
Power Dissipation	(Note 5)	P_D	3.0	W
	(Note 6)		2.0	
	(Note 7)		1.6	
	(Note 8)		1.2	
Thermal Resistance, Junction to Ambient	(Note 5)	$R_{\theta JA}$	41.7	°C/W
	(Note 6)		62.5	
	(Note 7)		78.1	
	(Note 8)		104	
Thermal Resistance, Junction to Lead	(Note 9)	$R_{\theta JL}$	10.9	
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to +150	°C

ESD Ratings (Note 10)

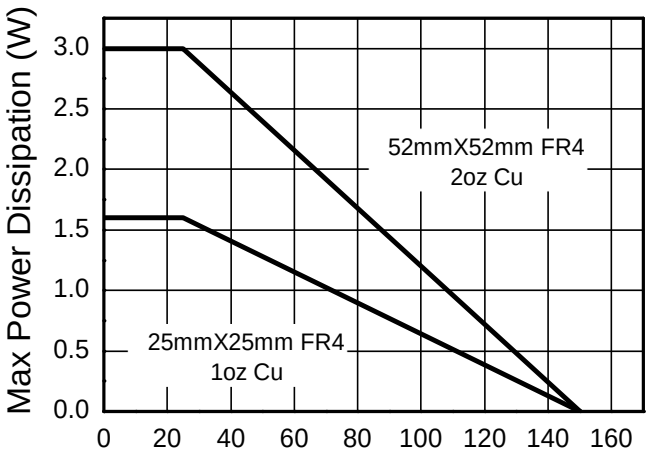
Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	4,000	V	3A
Electrostatic Discharge - Machine Model	ESD MM	400	V	C

Notes:
5. For a device mounted with the collector lead on 52mm × 52mm 2oz copper that is on a single-sided 1.6mm FR4 PCB; device is measured under still air conditions whilst operating in a steady-state.
6. Same as note (5), except the device is mounted on 25mm × 25mm 2oz copper.
7. Same as note (5), except the device is mounted on 25mm × 25mm 1oz copper.
8. Same as note (5), except the device is mounted on minimum recommended pad layout.
9. Thermal resistance from junction to solder-point (at the end of the collector lead).
10. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

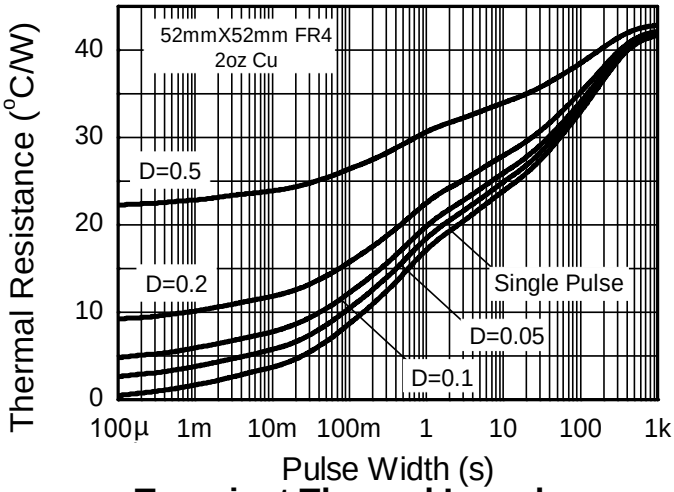
Thermal Characteristics and Derating Information



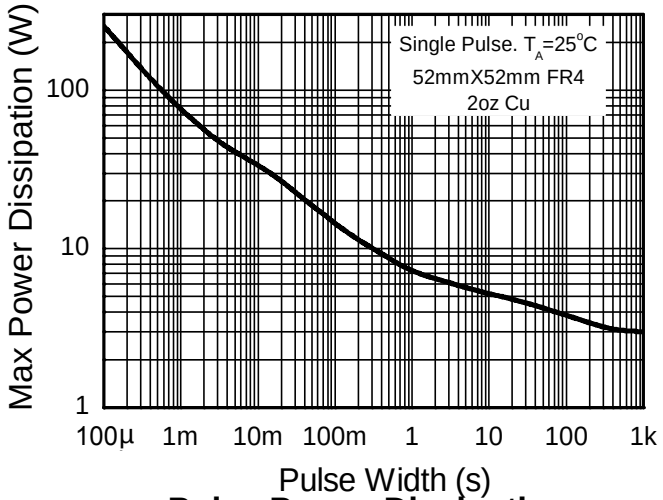
Safe Operating Area



Derating Curve



Transient Thermal Impedance



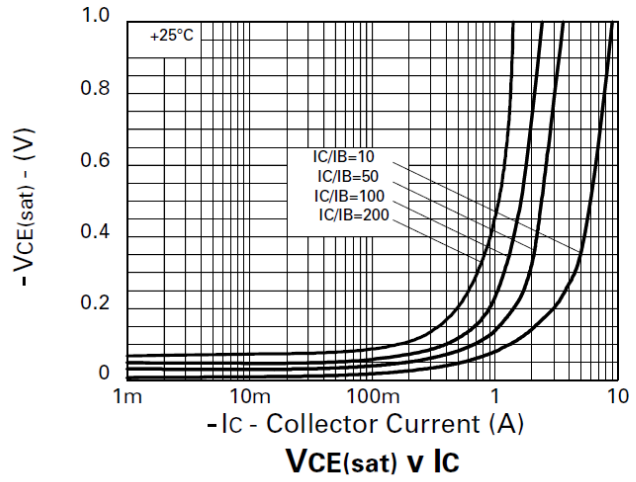
Pulse Power Dissipation

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

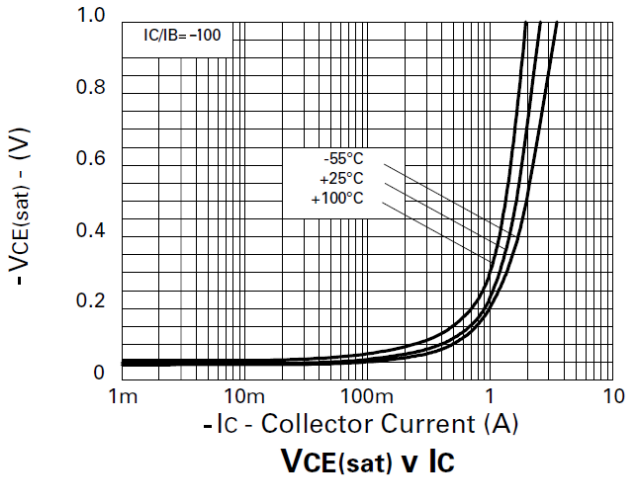
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	-45	-95	—	V	I_C = -100µA
Collector-Emitter Breakdown Voltage (Note 11)	BV_{CER}	-40	-90	—	V	I_C = -100µA
Collector-Emitter Breakdown Voltage (Note 11)	BV_{CEO}	-40	-85	—	V	I_C = -10mA
Collector-Emitter Breakdown Voltage (Note 11)	BV_{CEV}	-40	-90	—	V	I_C = -100µA, V_{EB} = +1V
Emitter-Base Breakdown Voltage	BV_{EBO}	-7	-8.5	—	V	I_E = -100µA
Collector Cut-Off Current	I_{CBO}	—	-0.3	-100	nA	V_{CB} = -36V
Emitter Cut-Off Current	I_{EBO}	—	-0.3	-100	nA	V_{EB} = -4V
Collector Emitter Cut-Off Current	I_{CEO}	—	-0.3	-100	nA	V_{CE} = -32V
DC Current Transfer Static Ratio (Note 11)	h_{FE}	270	450	—	—	I_C = -10mA, V_{CE} = -2V
		250	400	800		I_C = -500mA, V_{CE} = -2V
		180	300	—		I_C = -2A, V_{CE} = -2V
		100	190	—		I_C = -3A, V_{CE} = -2V
		—	45	—		I_C = -5A, V_{CE} = -2V
Collector-Emitter Saturation Voltage (Note 11)	$V_{CE(sat)}$	—	-60	-90	mV	I_C = -100mA, I_B = -1.0mA
		—	-120	-180		I_C = -500mA, I_B = -5mA
		—	-140	-220		I_C = -1A, I_B = -20mA
		—	-170	-260		I_C = -1.8A, I_B = -70mA
		—	-200	-300		I_C = -3A, I_B = -250mA
Base-Emitter Saturation Voltage (Note 11)	$V_{BE(sat)}$	—	-985	-1100	mV	I_C = -3A, I_B = -250mA
Base-Emitter Turn-On Voltage (Note 11)	$V_{BE(on)}$	—	-850	-1000	mV	I_C = -3A, V_{CE} = -2V
Transitional Frequency (Note 11)	f_T	—	145	—	MHz	I_C = -50mA, V_{CE} = -10V, f = 50MHz
Output Capacitance	C_{obo}	—	40	—	pF	V_{CB} = -10V, f = 1MHz
Switching Time	t_{on}	—	170	—	ns	V_{CC} = -30V, I_C = -2A, I_B = ±20mA
	t_{off}	—	460	—		

Note: 11. Measured under pulsed conditions. Pulse width ≤ 300µs. Duty cycle ≤ 2%.

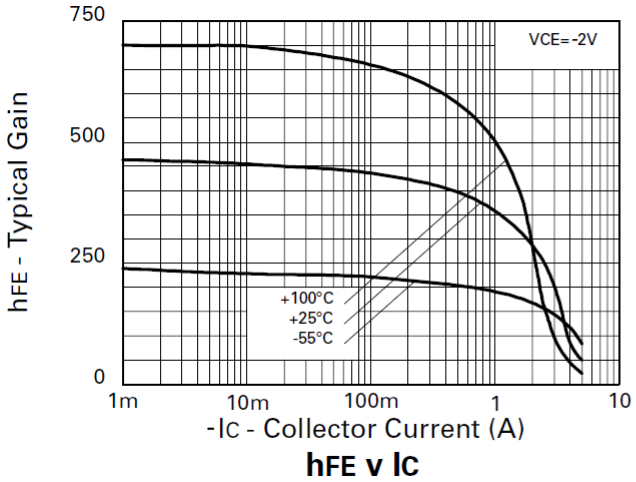
Typical Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)



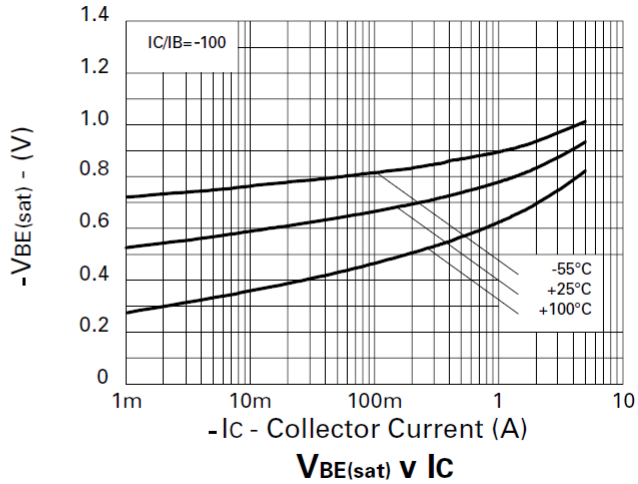
$V_{CE(sat)}$ v I_C



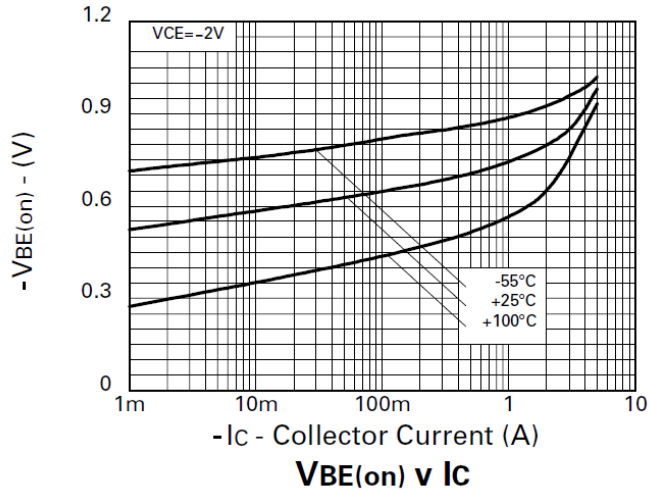
$V_{CE(sat)}$ v I_C



h_{FE} v I_C



$V_{BE(sat)}$ v I_C

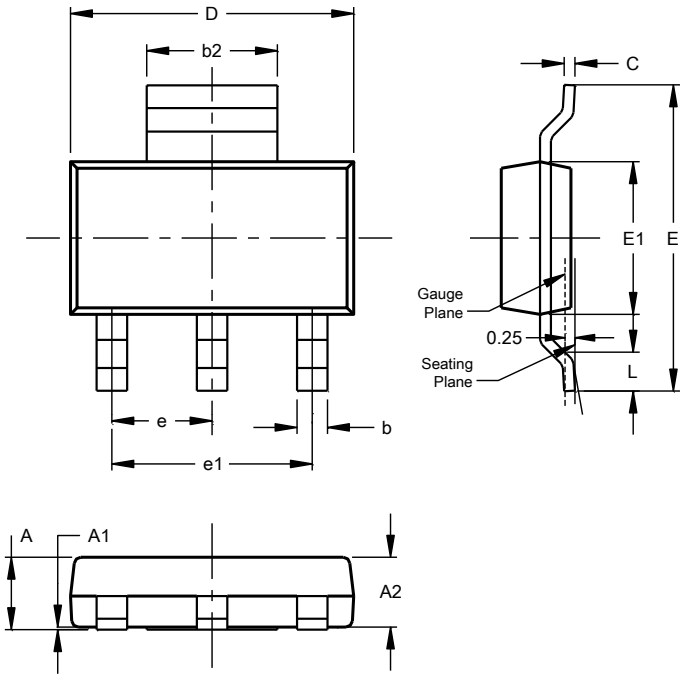


$V_{BE(on)}$ v I_C

Package Outline Dimensions

Please see http://www.diodes.com/package-outlines.html for the latest version.

SOT223 (Type DN)

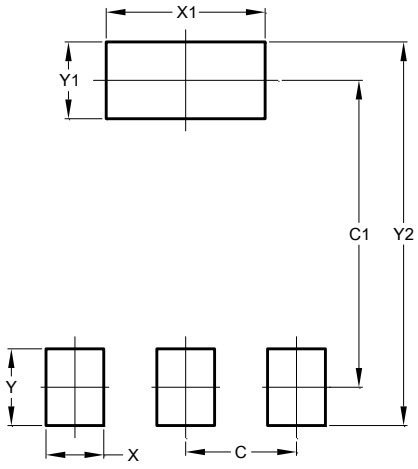


SOT223 (Type DN)			
Dim	**Min**	**Max**	**Typ**
A	--	1.70	--
A1	0.01	0.15	--
A2	1.50	1.68	1.60
b	0.60	0.80	0.70
b2	2.90	3.10	--
c	0.20	0.32	--
D	6.30	6.70	--
E	6.70	7.30	--
E1	3.30	3.70	--
e	--	--	2.30
e1	--	--	4.60
L	0.85	--	--
All Dimensions in mm			

Suggested Pad Layout

Please see http://www.diodes.com/package-outlines.html for the latest version.

SOT223 (Type DN)



Dimensions	Value (in mm)
C	2.30
C1	6.40
X	1.20
X1	3.30
Y	1.60
Y1	1.60
Y2	8.00

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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.

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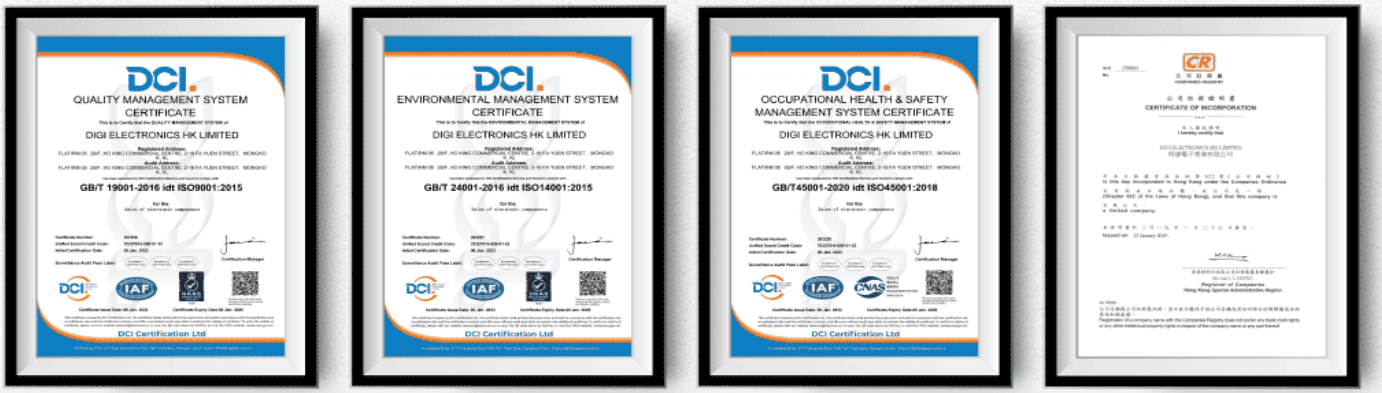

Tel: +00 852-30501935

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