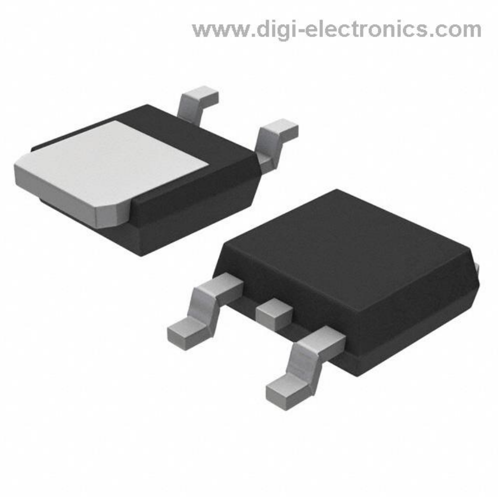
MJD350T4 Datasheet



https://www.DiGi-Electronics.com

DiGi Electronics Part Number	MJD350T4-DG
Manufacturer	onsemi
Manufacturer Product Number	MJD350T4
Description	TRANS PWR PNP 0.5A 300V DPAK
Detailed Description	Bipolar (BJT) Transistor PNP 300 V 500 mA 15 W Surface Mount DPAK

Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
MJD350T4	onsemi
Series:	Product Status:
-	Obsolete
Transistor Type:	Current - Collector (Ic) (Max):
PNP	500 mA
Voltage - Collector Emitter Breakdown (Max):	Vce Saturation (Max) @ Ib, Ic:
300 V	-
Current - Collector Cutoff (Max):	DC Current Gain (hFE) (Min) @ Ic, Vce:
100µA	30 @ 50mA, 10V
Power - Max:	Frequency - Transition:
15 W	-
Operating Temperature:	Mounting Type:
-65°C ~ 150°C (TJ)	Surface Mount
Package / Case:	Supplier Device Package:
TO-252-3, DPAK (2 Leads + Tab), SC-63	DPAK
Base Product Number:	
MJD35	

Environmental & Export classification

RoHS Status:	Moisture Sensitivity Level (MSL):
RoHS non-compliant	1 (Unlimited)
REACH Status:	ECCN:
REACH Unaffected	EAR99
HTSUS:	
8541.29.0095	

High Voltage Power Transistors

DPAK for Surface Mount Applications

MJD340 (NPN), MJD350 (PNP)

Designed for line operated audio output amplifier, switchmode power supply drivers and other switching applications.

Features

- Lead Formed for Surface Mount Applications in Plastic Sleeves (No Suffix)
- Electrically Similar to Popular MJE340 and MJE350
- Epoxy Meets UL 94 V−0 @ 0.125 in
- NJV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC−Q101 Qualified and PPAP Capable
- These Devices are Pb−Free, Halogen Free/BFR Free and are RoHS Compliant

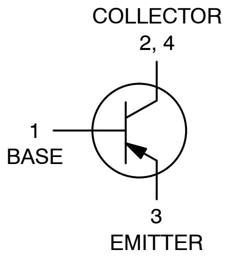
MAXIMUM RATINGS

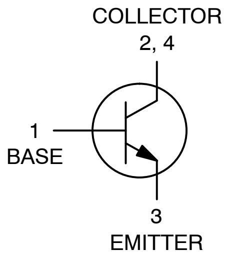
Rating	Symbol	Max	Unit
Collector−Emitter Voltage	V_{CEO}	300	Vdc
Collector−Base Voltage	V_{CB}	300	Vdc
Emitter−Base Voltage	V_{EB}	3	Vdc
Collector Current − Continuous	I_C	0.5	Adc
Collector Current − Peak	I_{CM}	0.75	Adc
Total Power Dissipation @ T_C = 25°C Derate above 25°C	P_D	 15 0.12	 W W/°C
Total Power Dissipation (Note 1) @ T_A = 25°C Derate above 25°C	P_D	 1.56 0.012	 W W/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	−65 to +150	°C
ESD − Human Body Model MJD340 (NPN) MJD350 (PNP)	HBM	 3B 2	V
ESD − Machine Model MJD340 (NPN) MJD350 (PNP)	MM	 M4 M4	V

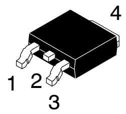
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

1. These ratings are applicable when surface mounted on the minimum pad sizes recommended.

**SILICON
POWER TRANSISTORS
0.5 AMPERE
300 VOLTS, 15 WATTS**

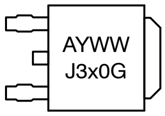






**DPAK
CASE 369C
STYLE 1**

MARKING DIAGRAM



A = Assembly Location
Y = Year
WW = Work Week
J3x0 = Device Code
x= 4 or 5
G = Pb−Free Package

ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 5 of this data sheet.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction−to−Case	$R_{\theta JC}$	8.33	°C/W
Thermal Resistance, Junction−to−Ambient (Note 2)	$R_{\theta JA}$	80	°C/W
Leading Temperature for Soldering Purpose	T_L	260	°C

2. These ratings are applicable when surface mounted on the minimum pad sizes recommended.

ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector−Emitter Sustaining Voltage (Note 3) (I_C = 1 mA, I_B = 0)	$V_{CEO(sus)}$	300	−	V
Collector Cutoff Current (V_{CB} = 300 V, I_E = 0)	I_{CEO}	−	0.1	mA
Emitter Cutoff Current (V_{BE} = 3 V, I_C = 0)	I_{EBO}	−	0.1	mA
ON CHARACTERISTICS (Note 3)				
DC Current Gain (I_C = 50 mA, V_{CE} = 10 V)	h_{FE}	30	240	−
Collector−Emitter Saturation Voltage (I_C = 100 mA, I_B = 10 mA)	$V_{CE(sat)}$	−	1	V
Base−Emitter On Voltage (I_C = 1 A, V_{CE} = 10 V)	$V_{BE(on)}$	−	1.5	V
DYNAMIC CHARACTERISTICS				
Current Gain − Bandwidth Product (I_C = 50 mA, V_{CE} = 10 V, f = 10 MHz)	f_T	10	−	MHz

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

3. Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2%.

TYPICAL CHARACTERISTICS

MJD340

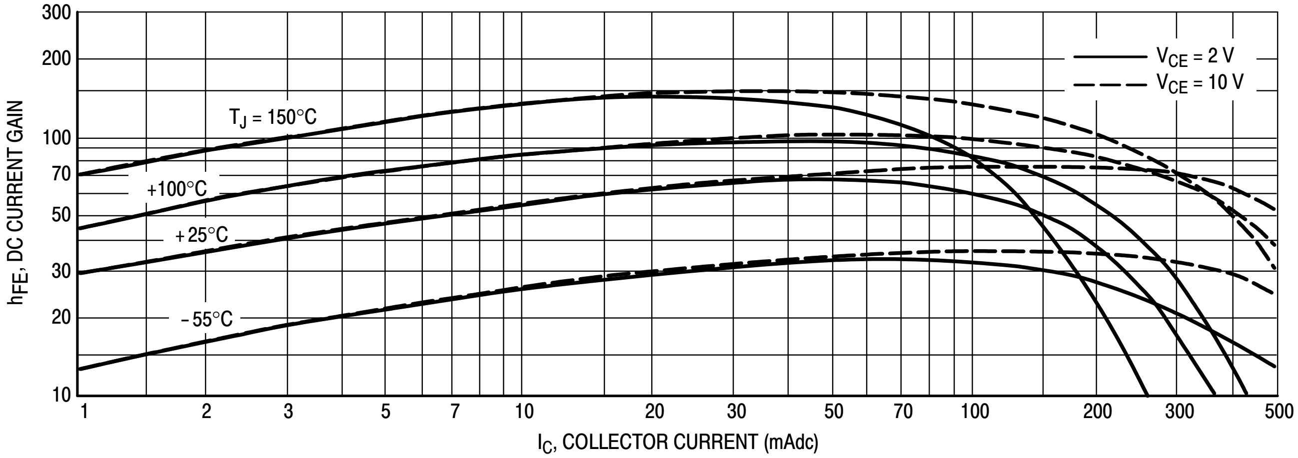


Figure 1. DC Current Gain

MJD340

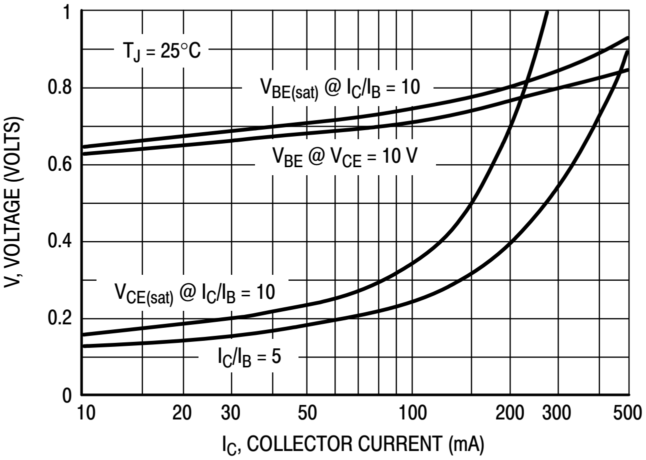


Figure 2. “On” Voltages

MJD350

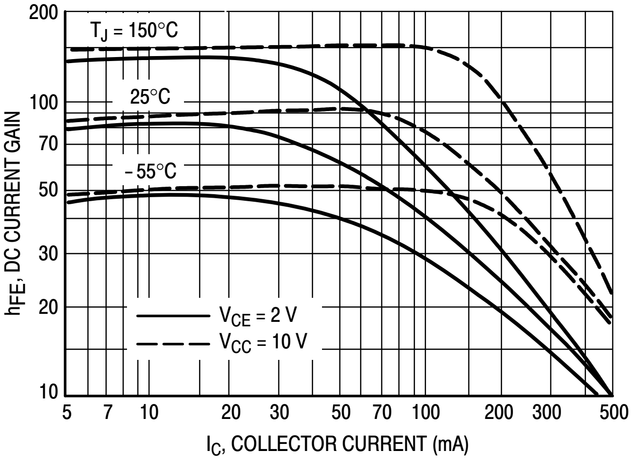


Figure 3. DC Current Gain

MJD350

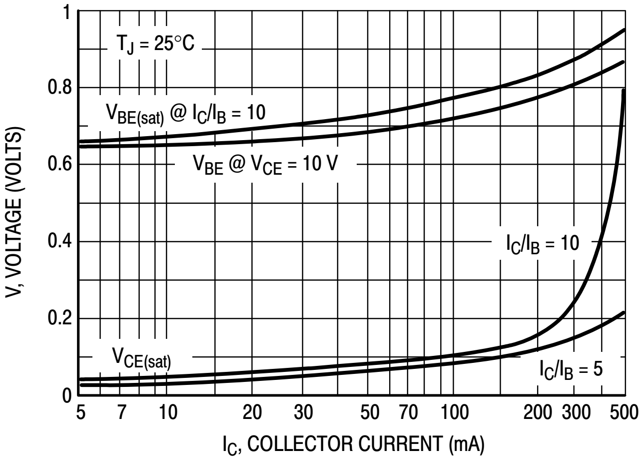


Figure 4. “On” Voltages

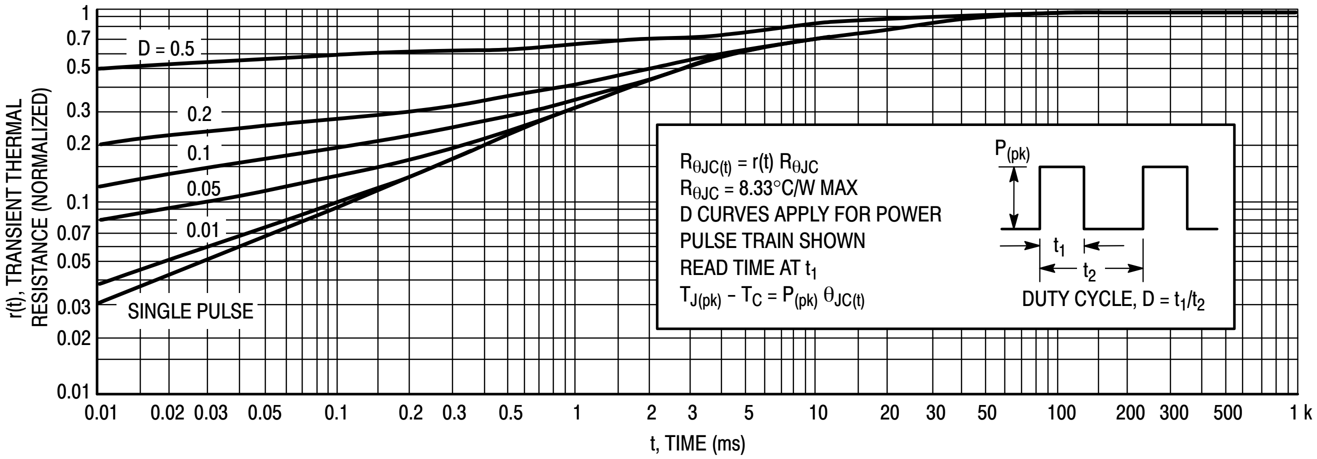


Figure 5. Thermal Response

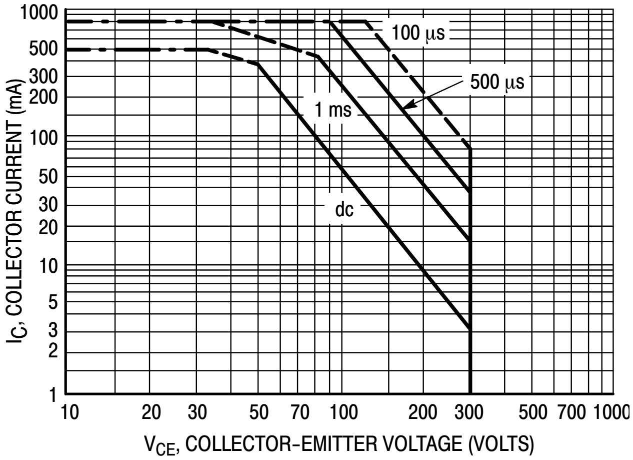


Figure 6. Active Region Safe Operating Area

There are two limitations on the power handling ability of a transistor: average junction temperature and second breakdown. Safe operating area curves indicate $I_C - V_{CE}$ limits of the transistor that must be observed for reliable operation; i.e., the transistor must not be subjected to greater dissipation than the curves indicate.

The data of Figure 6 is based on $T_{J(pk)} = 150°C$; T_C is variable depending on conditions. Second breakdown pulse limits are valid for duty cycles to 10% provided $T_{J(pk)} \leq 150°C$. $T_{J(pk)}$ may be calculated from the data in Figure 5. At high case temperatures, thermal limitations will reduce the power that can be handled to values less than the limitations imposed by second breakdown.

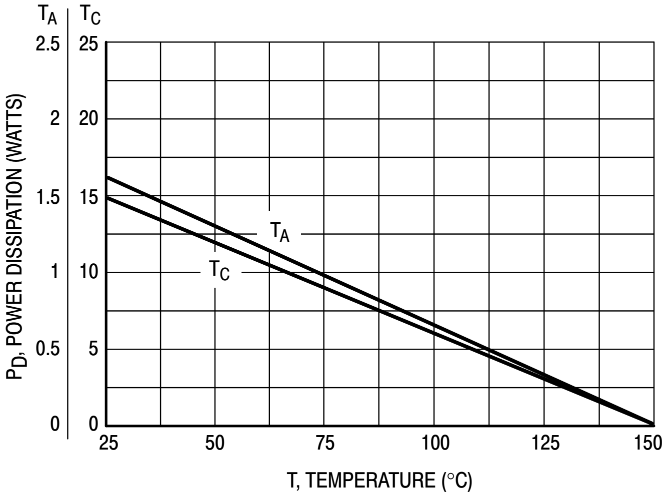


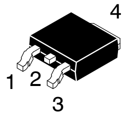
Figure 7. Power Derating

ORDERING INFORMATION

Device	Package	Shipping†
MJD340G	DPAK (Pb−Free)	75 Units / Rail
MJD340RLG	DPAK (Pb−Free)	1,800 / Tape & Reel
MJD340T4G	DPAK (Pb−Free)	2,500 / Tape & Reel
MJD340T4GN	DPAK (Pb−Free)	2,500 / Tape & Reel
NJVMJD340T4G	DPAK (Pb−Free)	2,500 / Tape & Reel
MJD350G	DPAK (Pb−Free)	75 Units / Rail
MJD350T4G	DPAK (Pb−Free)	2,500 / Tape & Reel
MJD350T4GN	DPAK (Pb−Free)	2,500 / Tape & Reel
NJVMJD350T4G	DPAK (Pb−Free)	2,500 / Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

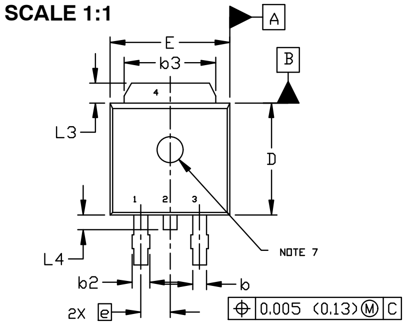
MECHANICAL CASE OUTLINE
PACKAGE DIMENSIONS



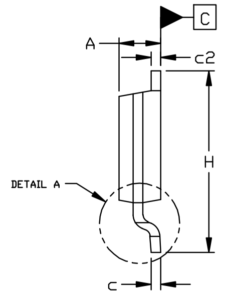
SCALE 1:1

DPAK (SINGLE GAUGE)
CASE 369C
ISSUE G

DATE 31 MAY 2023



TOP VIEW

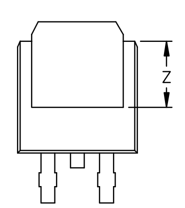


SIDE VIEW

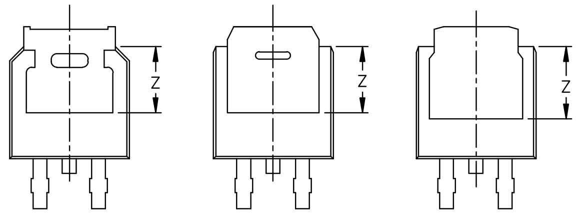
NOTES:

1. DIMENSIONING AND TOLERANCING ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: INCHES
3. THERMAL PAD CONTOUR OPTIONAL WITHIN DIMENSIONS b3, L3, AND Z.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR BURRS. MOLD FLASH, PROTRUSIONS, OR GATE BURRS SHALL NOT EXCEED 0.006 INCHES PER SIDE.
5. DIMENSIONS D AND E ARE DETERMINED AT THE OUTERMOST EXTREMES OF THE PLASTIC BODY.
6. DATUMS A AND B ARE DETERMINED AT DATUM PLANE H.
7. OPTIONAL MOLD FEATURE.

DIM	INCHES		MILLIMETERS	
	MIN.	MAX.	MIN.	MAX.
A	0.086	0.094	2.18	2.38
A1	0.000	0.005	0.00	0.13
b	0.025	0.035	0.63	0.89
b2	0.028	0.045	0.72	1.14
b3	0.180	0.215	4.57	5.46
c	0.018	0.024	0.46	0.61
c2	0.018	0.024	0.46	0.61
D	0.235	0.245	5.97	6.22
E	0.250	0.265	6.35	6.73
e	0.090 BSC		2.29 BSC	
H	0.370	0.410	9.40	10.41
L	0.055	0.070	1.40	1.78
L1	0.114 REF		2.90 REF	
L2	0.020 BSC		0.51 BSC	
L3	0.035	0.050	0.89	1.27
L4	----	0.040	---	1.01
Z	0.155	----	3.93	---

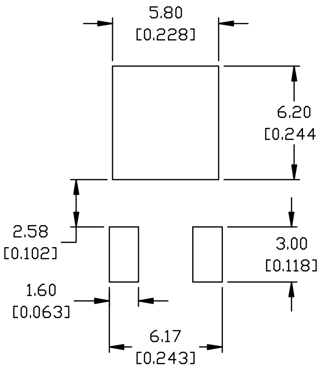


BOTTOM VIEW



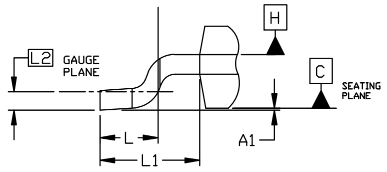
BOTTOM VIEW

ALTERNATE CONSTRUCTIONS



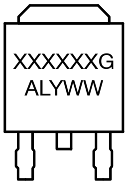
RECOMMENDED MOUNTING FOOTPRINT*

*FOR ADDITIONAL INFORMATION ON OUR PB-FREE STRATEGY AND SOLDERING DETAILS, PLEASE DOWNLOAD THE ON SEMICONDUCTOR SOLDERING AND MOUNTING TECHNIQUES REFERENCE MANUAL, SOLDERRM/D.

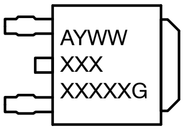


DETAIL A
ROTATED 90° CW

GENERIC MARKING DIAGRAM*



IC



Discrete

XXXXXX = Device Code
A = Assembly Location
L = Wafer Lot
Y = Year
WW = Work Week
G = Pb−Free Package

*This information is generic. Please refer to device data sheet for actual part marking. Pb−Free indicator, “G” or microdot “▪”, may or may not be present. Some products may not follow the Generic Marking.

STYLE 1:
PIN 1. BASE
2. COLLECTOR
3. EMITTER
4. COLLECTOR

STYLE 2:
PIN 1. GATE
2. DRAIN
3. SOURCE
4. DRAIN

STYLE 3:
PIN 1. ANODE
2. CATHODE
3. ANODE
4. CATHODE

STYLE 4:
PIN 1. CATHODE
2. ANODE
3. GATE
4. ANODE

STYLE 5:
PIN 1. GATE
2. ANODE
3. CATHODE
4. ANODE

STYLE 6:
PIN 1. MT1
2. MT2
3. GATE
4. MT2

STYLE 7:
PIN 1. GATE
2. COLLECTOR
3. EMITTER
4. COLLECTOR

STYLE 8:
PIN 1. N/C
2. CATHODE
3. ANODE
4. CATHODE

STYLE 9:
PIN 1. ANODE
2. CATHODE
3. RESISTOR ADJUST
4. CATHODE

STYLE 10:
PIN 1. CATHODE
2. ANODE
3. CATHODE
4. ANODE

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DESCRIPTION:	**DPAK (SINGLE GAUGE)**	**PAGE 1 OF 1**

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onsemi Website: www.onsemi.com

ONLINE SUPPORT: www.onsemi.com/support
For additional information, please contact your local Sales Representative at
www.onsemi.com/support/sales

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

DCI.

QUALITY MANAGEMENT SYSTEM CERTIFICATE

DIGI ELECTRONICS HK LIMITED

GB/T 19001-2016 idt ISO9001:2015

DCI Certification Ltd

DCI.

ENVIRONMENTAL MANAGEMENT SYSTEM CERTIFICATE

DIGI ELECTRONICS HK LIMITED

GB/T 24001-2016 idt ISO14001:2015

DCI Certification Ltd

DCI.

OCCUPATIONAL HEALTH & SAFETY MANAGEMENT SYSTEM CERTIFICATE

DIGI ELECTRONICS HK LIMITED

GB/T45001-2020 idt ISO45001:2018

DCI Certification Ltd

CR

CERTIFICATE OF INCORPORATION

I hereby certify that

a limited company.

Registrar of Companies
Hong Kong Special Administrative Region

ASA

MEMBERSHIP
Certificate

The Aviation Suppliers Association has enrolled as a Regular Member

DIGI ELECTRONICS HK LIMITED

Michele Dickstein
President

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