

1-Line Uni-directional TVS Diode

Features

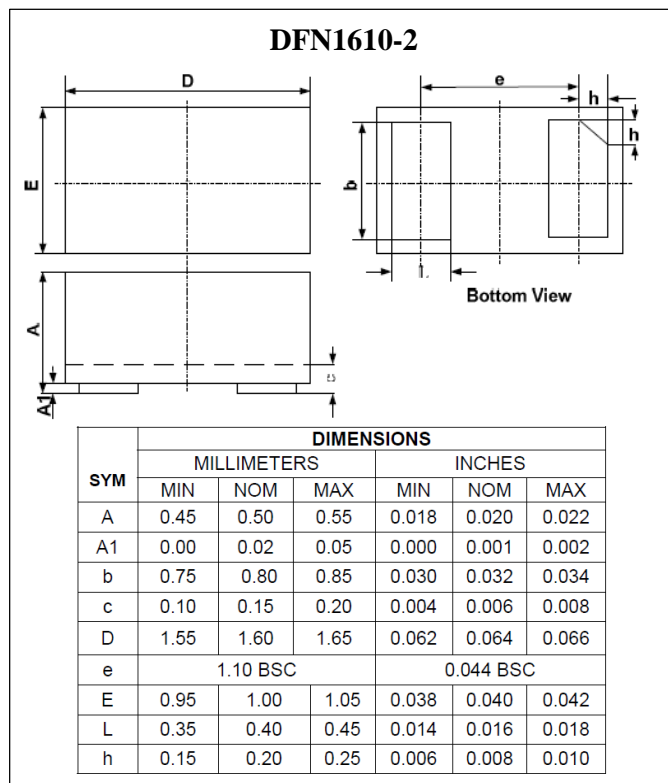
- Ultra small package : 1.6×1.0 ×0.5mm
- Protects one data or power line
- Operating Voltage : 3.3V, 5V, 7V, 12V, 15V, 18V, 24V, 36V
- High peak pulse current capability
- Ultra low clamping voltage
- 2-pin leadless package
- Complies with following standards :
 - IEC 61000-4-2(ESD) immunity test
 - Air discharge : ±30kV, Contact discharge : ±30kV
- RoHS Compliant

Mechanical Data

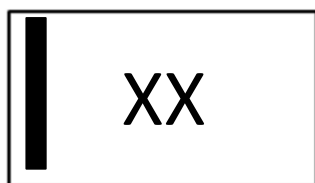
- Package : DFN1610-2
- Case Material : "Green" Molding Compound.
- Moisture Sensitivity : Level 3 per J-STD-020
- Terminal Connections : See Below
- Marking Information : See Below

Applications

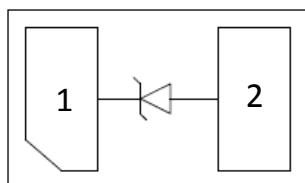
- Mobile Phones and Accessories
- Battery Protection
- Power Line Protection
- Vbat pin for Mobile Devices
- Hand Held Portable Applications



Marking



xx=Device Marking Code
Bar denotes Cathode



Circuit and Pin Schematic

Ordering Information

VMPart Number	Marking	Packaging	Reel Size
AU0371P6	73	3000/Tape & Reel	7 inch
AU0571P6	91	3000/Tape & Reel	7 inch
AU0771P6	76	3000/Tape & Reel	7 inch
AU1271P6	72	3000/Tape & Reel	7 inch
AU1571P6	75	3000/Tape & Reel	7 inch
AU1871P6	78	3000/Tape & Reel	7 inch
AU2471P6	74	3000/Tape & Reel	7 inch
AU3671P6	79	3000/Tape & Reel	7 inch

Absolute Maximum Ratings (Ta= 25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20us)	Ppk	1875	W
ESD per IEC 61000-4-2 (Air)	V _{ESD}	±30	kV
ESD per IEC 61000-4-2 (Contact)		±30	
Operating Junction Temperature Range	T _J	-55 to +125	°C
Storage Temperature Range	T _{STG}	-55 to +150	°C

Electrical Characteristics (Ta= 25 °C unless otherwise specified)

AU0371P6						
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Reverse Working Voltage	V_{RWM}	-	-	3.3	V	
Breakdown Voltage	V_{BR}	3.5	-	-	V	$I_T = 1mA$
Reverse Leakage Current	I_R	-	-	1.0	μA	$V_{RWM} = 3.3V$
Forward Voltage	V_F	-	1.0	1.2	V	$I_F = 10mA$
Peak Pulse Current	I_{PP}	-	-	150	A	$t_p = 8/20us$
Clamping Voltage(8×20us pulse)	V_C	-	-	5.5	V	$I_{PP}=10A$
Clamping Voltage(8×20us pulse)	V_C	-	-	12.5	V	$I_{PP}=150A$
Junction Capacitance	C_J	-	-	750	pF	$f=1MHz, V_R=0V$

AU0571P6						
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Reverse Working Voltage	V_{RWM}	-	-	5.0	V	
Breakdown Voltage	V_{BR}	6.0	-	-	V	$I_T = 1mA$
Reverse Leakage Current	I_R	-	-	1.0	μA	$V_{RWM} = 5V$
Forward Voltage	V_F	-	1.0	1.2	V	$I_F = 10mA$
Peak Pulse Current	I_{PP}	-	-	125	A	$t_p = 8/20us$
Clamping Voltage(8×20us pulse)	V_C	-	-	9	V	$I_{PP}=10A$
Clamping Voltage(8×20us pulse)	V_C	-	-	15	V	$I_{PP}=125A$
Junction Capacitance	C_J	-	-	650	pF	$f=1MHz, V_R=0V$

AU0771P6						
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Reverse Working Voltage	V_{RWM}	-	-	7.0	V	
Breakdown Voltage	V_{BR}	7.5	-	-	V	$I_T = 1mA$
Reverse Leakage Current	I_R	-	-	0.5	μA	$V_{RWM} = 7V$
Forward Voltage	V_F	-	1.0	1.2	V	$I_F = 10mA$
Peak Pulse Current	I_{PP}	-	-	115	A	$t_p = 8/20us$
Clamping Voltage(8×20us pulse)	V_C	-	-	12	V	$I_{PP}=10A$
Clamping Voltage(8×20us pulse)	V_C	-	-	16.5	V	$I_{PP}=115A$
Junction Capacitance	C_J	-	-	550	pF	$f=1MHz, V_R=0V$

AU1271P6						
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Reverse Working Voltage	V_{RWM}	-	-	12.0	V	
Breakdown Voltage	V_{BR}	12.6	-	-	V	$I_T = 1mA$
Reverse Leakage Current	I_R	-	-	0.1	μA	$V_{RWM} = 12V$
Forward Voltage	V_F	-	-	1.2	V	$I_F = 10mA$
Peak Pulse Current	I_{PP}	-	-	75	A	$t_p = 8/20us$
Clamping Voltage(8×20us pulse)	V_C	-	-	18	V	$I_{PP}=10A$
Clamping Voltage(8×20us pulse)	V_C	-	-	25	V	$I_{PP}=75A$
Junction Capacitance	C_J	-	-	500	pF	$f=1MHz, V_R=0V$

Electrical Characteristics (Ta= 25°C unless otherwise specified)

AU1571P6						
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Reverse Working Voltage	V_{RWM}	-	-	15.0	V	
Breakdown Voltage	V_{BR}	16.5	-	-	V	$I_T = 1mA$
Reverse Leakage Current	I_R	-	-	0.1	μA	$V_{RWM} = 15V$
Forward Voltage	V_F	-	-	1.2	V	$I_F = 10mA$
Peak Pulse Current	I_{PP}	-	-	60	A	$tp = 8/20us$
Clamping Voltage(8×20us pulse)	V_C	-	-	22	V	$I_{PP}=10A$
Clamping Voltage(8×20us pulse)	V_C	-	-	31.25	V	$I_{PP}=60A$
Junction Capacitance	C_J	-	-	450	pF	$f=1MHz, V_R=0V$

AU1871P6						
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Reverse Working Voltage	V_{RWM}	-	-	18.0	V	
Breakdown Voltage	V_{BR}	19.6	-	-	V	$I_T = 1mA$
Reverse Leakage Current	I_R	-	-	0.1	μA	$V_{RWM} = 18V$
Forward Voltage	V_F	-	1.0	1.2	V	$I_F = 10mA$
Peak Pulse Current	I_{PP}	-	-	50	A	$tp = 8/20us$
Clamping Voltage(8×20us pulse)	V_C	-	-	26	V	$I_{PP}=10A$
Clamping Voltage(8×20us pulse)	V_C	-	-	37.5	V	$I_{PP}=50A$
Junction Capacitance	C_J	-	-	350	pF	$f=1MHz, V_R=0V$

AU2471P6						
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Reverse Working Voltage	V_{RWM}	-	-	24.0	V	
Breakdown Voltage	V_{BR}	26.7	-	-	V	$I_T = 1mA$
Reverse Leakage Current	I_R	-	-	0.1	μA	$V_{RWM} = 24V$
Forward Voltage	V_F	-	-	1.2	V	$I_F = 10mA$
Peak Pulse Current	I_{PP}	-	-	35	A	$tp = 8/20us$
Clamping Voltage(8×20us pulse)	V_C	-	-	42	V	$I_{PP}=10A$
Clamping Voltage(8×20us pulse)	V_C	-	-	53.5	V	$I_{PP}=35A$
Junction Capacitance	C_J	-	-	200	pF	$f=1MHz, V_R=0V$

AU3671P6						
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Reverse Working Voltage	V_{RWM}	-	-	36.0	V	
Breakdown Voltage	V_{BR}	37.0	-	-	V	$I_T = 1mA$
Reverse Leakage Current	I_R	-	-	0.1	μA	$V_{RWM} = 36V$
Forward Voltage	V_F	-	-	1.2	V	$I_F = 10mA$
Peak Pulse Current	I_{PP}	-	-	25	A	$tp = 8/20us$
Clamping Voltage(8×20us pulse)	V_C	-	-	60	V	$I_{PP}=10A$
Clamping Voltage(8×20us pulse)	V_C	-	-	75	V	$I_{PP}=25A$
Junction Capacitance	C_J	-	-	150	pF	$f=1MHz, V_R=0V$

Electrical Characteristics (Ta= 25°C unless otherwise specified)

Fig.1 Power Derating Curve

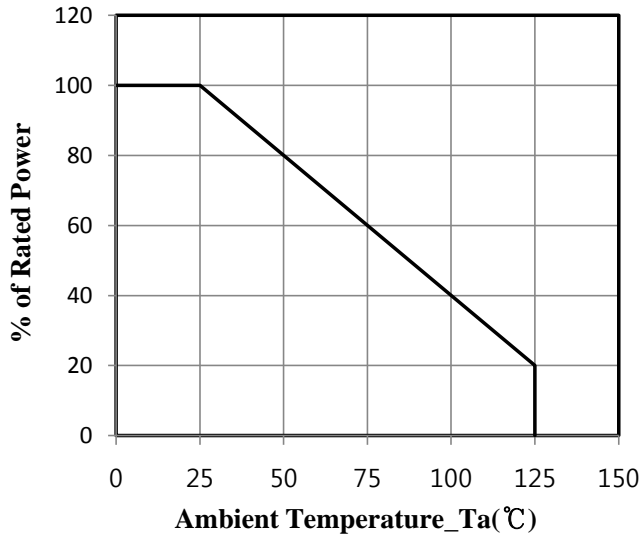


Fig.2 Peak Pulse Power vs. Pulse Time

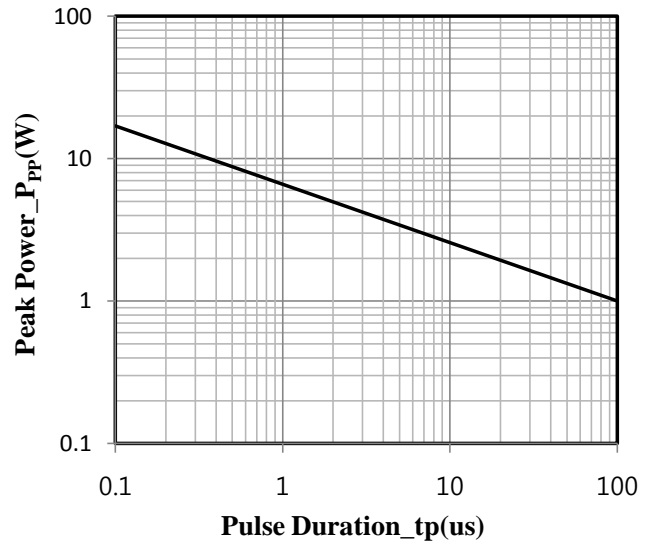
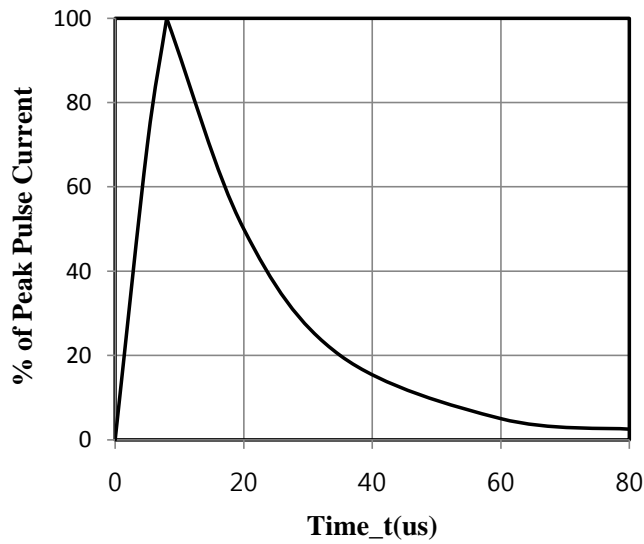
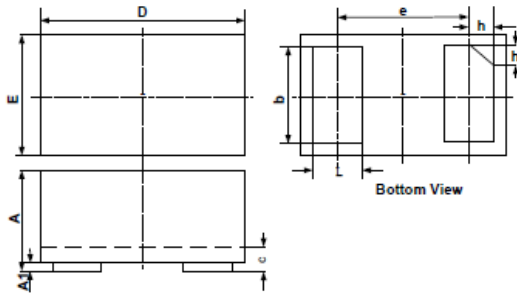


Fig.3 8 × 20us Pulse Waveform



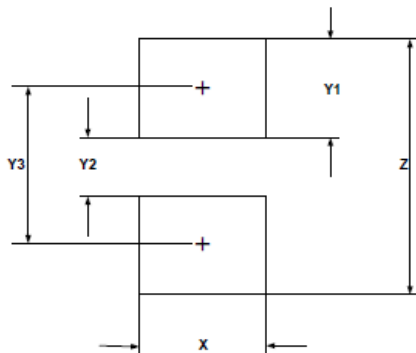


DFN1610-2 Package Outline Drawing



SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.45	0.50	0.55	0.018	0.020	0.022
A1	0.00	0.02	0.05	0.000	0.001	0.002
b	0.75	0.80	0.85	0.030	0.032	0.034
c	0.10	0.15	0.20	0.004	0.006	0.008
D	1.55	1.60	1.65	0.062	0.064	0.066
e	1.10 BSC			0.044 BSC		
E	0.95	1.00	1.05	0.038	0.040	0.042
L	0.35	0.40	0.45	0.014	0.016	0.018
h	0.15	0.20	0.25	0.006	0.008	0.010

Suggested Land Pattern



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
X	1.00	0.040
Y1	0.62	0.025
Y2	0.60	0.024
Y3	1.22	0.049
Z	1.85	0.074