

N405AT35

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4-Channel ESD Protection Array 5.0V

Features

- Solid-state silicon-avalanche technology.
- Provide ESD protection for each channel to
IEC 61000-4-2 (ESD) $\pm 15\text{kV}$ (air), $\pm 8\text{kV}$ (contact).
IEC 61000-4-4 (EFT) 40A(5/50ns).
IEC 61000-4-5 (Lightning) 5.5A(8/20 μs)
- 100 Watts peak pulse power per line ($t_p=8/20\mu\text{s}$).
- Up to Four (4) line of protection.
- Working voltage : 5V.
- Low leakage current.

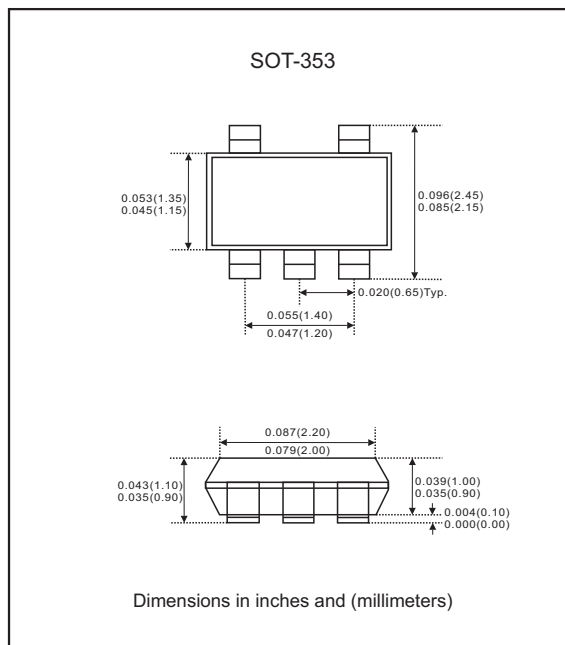
Applications

- Cellular handsets & Accessories.
- Personal digital assistants (PDAs).
- Notebooks & handhelds.
- Portable instrumentation.
- Digital cameras.
- Mp3 Player.

Mechanical data

- Epoxy:UL94-V0 rated flame retardant.
- Case : Molded plastic, SOT-353.
- Terminals : Solder plated, solderable per
MIL-STD-750, Method 2026.
- Mounting Position : Any.

Package outline

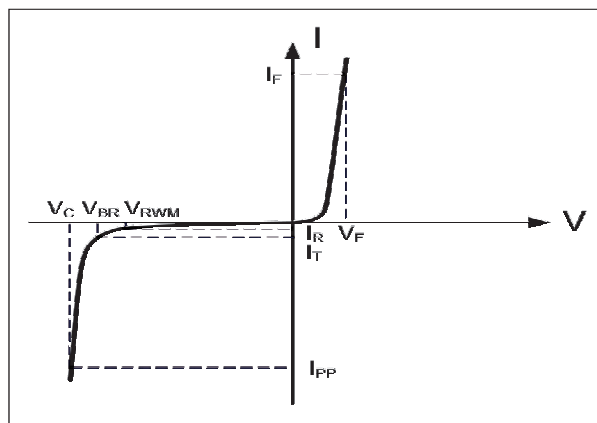


Maximum ratings (at $T_A=25^\circ\text{C}$ unless otherwise noted)

Rating	Symbol	Value	Unit
Peak pulse power ($t_p=8/20\mu\text{s}$)	P_{PP}	100	W
Peak forward voltage ($I_F=1\text{A}$, $t_p=8/20\mu\text{s}$)	V_{FP}	1.5	V
Operating Temperature	T_j	-55 to +125	$^\circ\text{C}$
Storage temperature	T_{STG}	-55 to +150	$^\circ\text{C}$

Electrical parameters

Symbol	Parameter
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Working Peak Reverse Voltage
I_R	Maximum Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_F	Forward Current
V_F	Forward Voltage @ I_F



Electrical characteristics (at $T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
Reverse stand-off voltage		V_{RWM}			5.0	V
Reverse breakdown voltage	$I_T=1\text{mA}$	V_{BR}	6.0			V
Reverse leakage current	$V_{RWM}=5\text{V}$	I_R			1	μA
Clamping voltage	$I_{PP}=5.5\text{A}$, $t_p=8/20\mu\text{s}$	V_C		15	18	V
Junction capacitance	$V_R=0\text{V}$, $f=1\text{MHz}$, Between I/O pins and ground	C_j		22	25	pF

Rating and characteristic curves(N405AT35)

Figure 1: Peak Pulse Power vs. Pulse Time

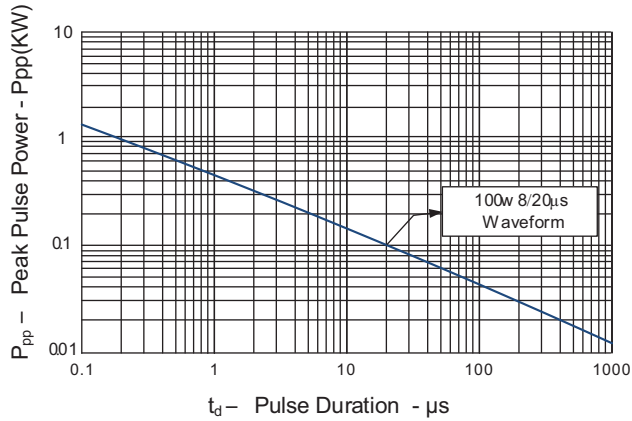


Figure 2: Power Derating Curve

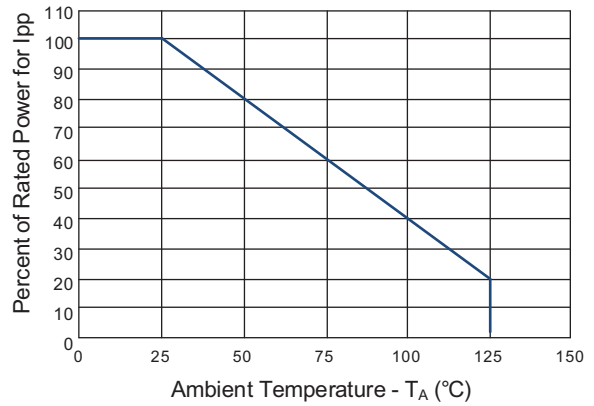


Figure 3: Clamping Voltage vs. Peak Pulse Current

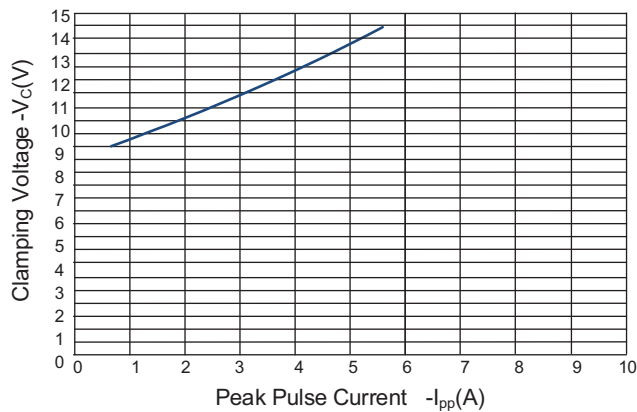


Figure 4: Insertion Loss

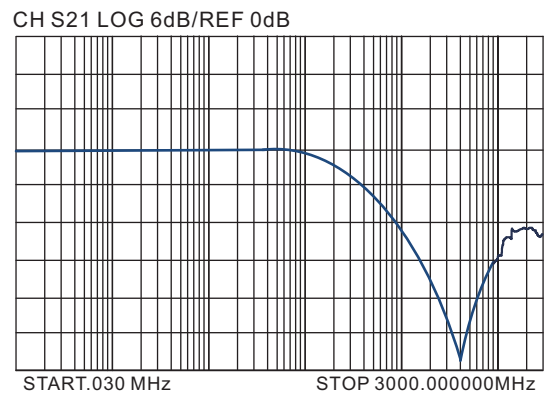


Figure 5: Normalized Junction Capacitance vs. Reverse Voltage

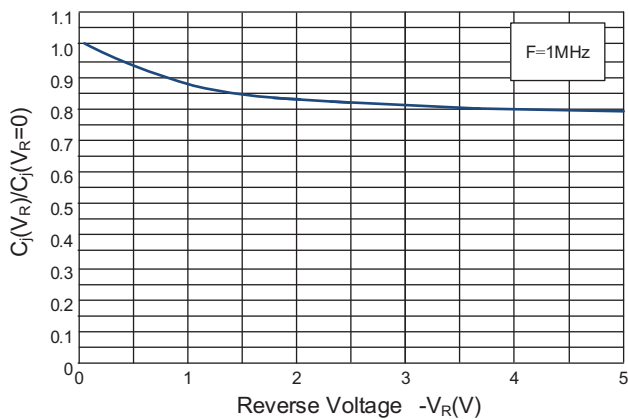
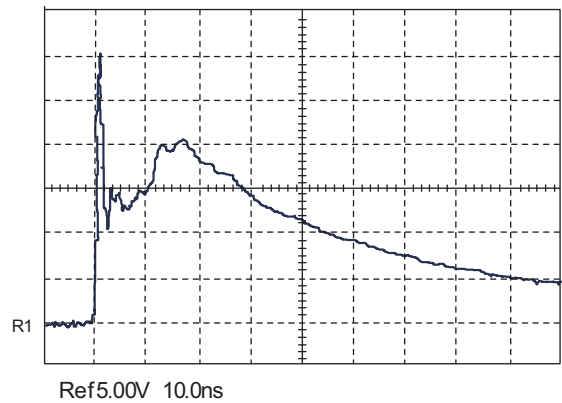
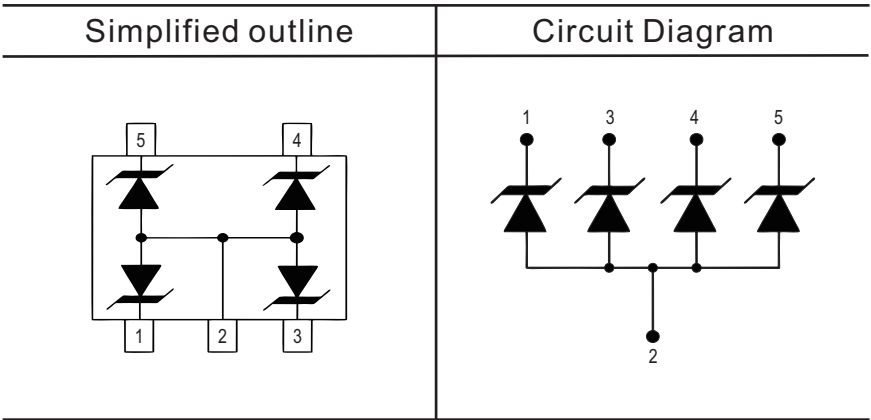


Figure 6: ESD Pulse Wavform (Per IEC 61000-4-2)

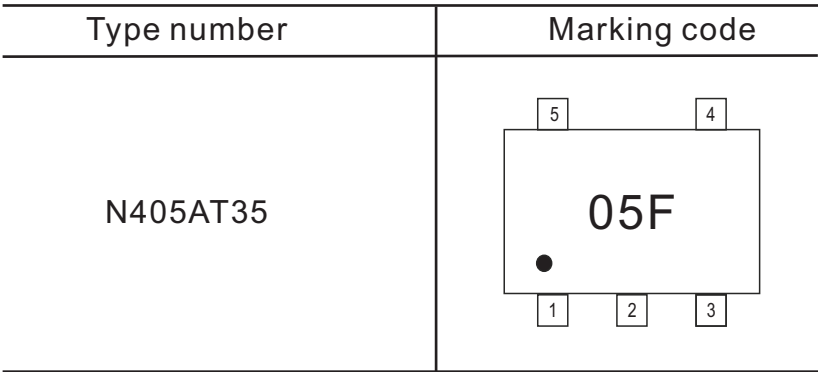


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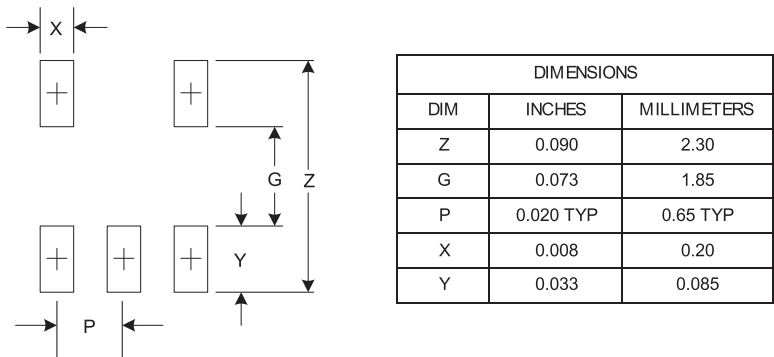
Pinning information



Marking



Suggested solder pad layout



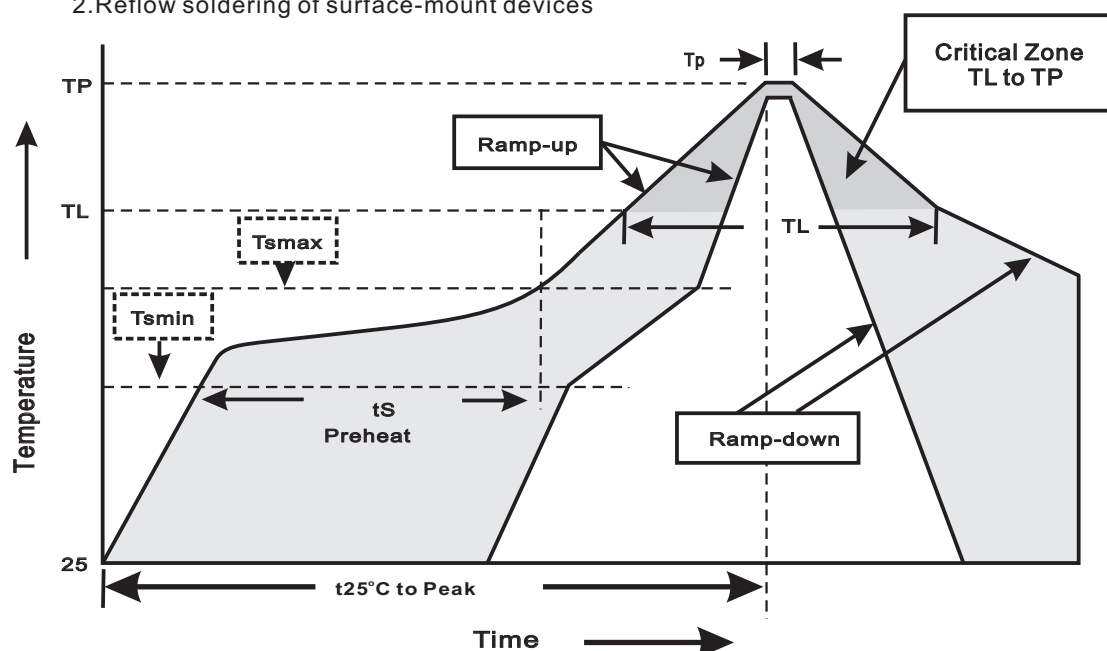
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Reel packing

PACKAGE	REEL SIZE	REEL (pcs)	COMPONENT SPACING (m/m)	BOX (pcs)	INNER BOX (m/m)	REEL DIA, (m/m)	CARTON SIZE (m/m)	CARTON (pcs)	APPROX. GROSS WEIGHT (kg)
SOT-353	7"	3,000	4.0	30,000	183*123*183	178	382*257*387	240,000	9.50

Suggested thermal profiles for soldering processes

- 1.Storage environment: Temperature=5°C~40°C Humidity=55%±25%
- 2.Reflow soldering of surface-mount devices



3.Reflow soldering

Profile Feature	Soldering Condition
Average ramp-up rate(T _L to T _P)	<3°C/sec
Preheat -Temperature Min(T _{sm}) -Temperature Max(T _{sm}) -Time(min to max)(t _s)	150°C 200°C 60~120sec
T _{sm} to T _L -Ramp-upRate	<3°C/sec
Time maintained above: -Temperature(T _L) -Time(t _L)	217°C 60~260sec
Peak Temperature(T _P)	255°C-0/+5°C
Time within 5°C of actual Peak Temperature(t _P)	10~30sec
Ramp-down Rate	<6°C/sec
Time 25°C to Peak Temperature	<6minutes