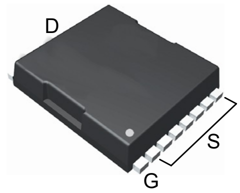
30V N-ChannelEnhancement Mode MOSFET

Features

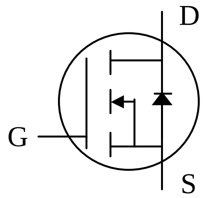
- Advanced Super Trench technology
- Low Gate Charge.
- Low On-Resistance
- Low Reverse transfer capacitances
- Fast Switching
- Reliable and Rugged
- Fully lead (Pb)-free device
- 100% avalanche energy Test



TOLLA View

Applications

- Power Management.
- PWM Application.
- Load Switching.



Schematic Diagram

Product Summary

Parameter	Value	Unit
V_{DS}	30	V
I_D @ V_{GS}= 10V	384	A
$R_{DS(ON)}$(typ.) @ V_{GS}=10V	0.50	mΩ

Order information

Product Name	Package	Media	Q'ty (pcs)
XPXGL36068LAC	TOLLA	Reel&Tape	2000

Absolute maximum ratings (at T_A = 25°C ,unless otherwise specified)

Symbol	Parameter		Rating	Unit
V_{DS}	Drain-Source Voltage		30	V
V_{GS}	Gate-Source Voltage		±20	V
I_D	Drain Current -Continuous ①	T_C= 25°C	384	A
		T_C= 100°C	272	A
I_{DM}	Drain Current -Pulsed ①	T_C= 25°C	1260	A
P_D	Maximum Power Dissipation	T_C= 25°C	250	W
		T_C= 100°C	125	W
R_{thJ-C}	Thermal Resistance-Junction to Case	Steady State	0.60	°C/W
R_{thJ-A}	Thermal Resistance-Junction to Ambient ③	Steady State	50	°C/W
I_{AS}	Avalanche Energy, Single pulse ② ④	L=0.5mH	58	A
E_{AS}	Avalanche Energy, Single pulse ② ④	L=0.5mH	841	mJ
T_{stg}	Storage Temperature		-55 to175	°C
Tj	Maximum Junction Temperature		175	°C

Note :

①,Pulse width limited by maximum junction temperature.

②,UIS tested and pulse width limited by maximum junction temperature 175℃ (initial temperature Tj=25℃).

③,Surface mounted on 1in^2 pad area, steady state t = 999s.

④, EAS Condition :Tj=25℃,VD=15V VG=10V,L=0.5mH,Rg=25Ω.

Electrical Characteristics (T_c=25℃unless otherwise noted)

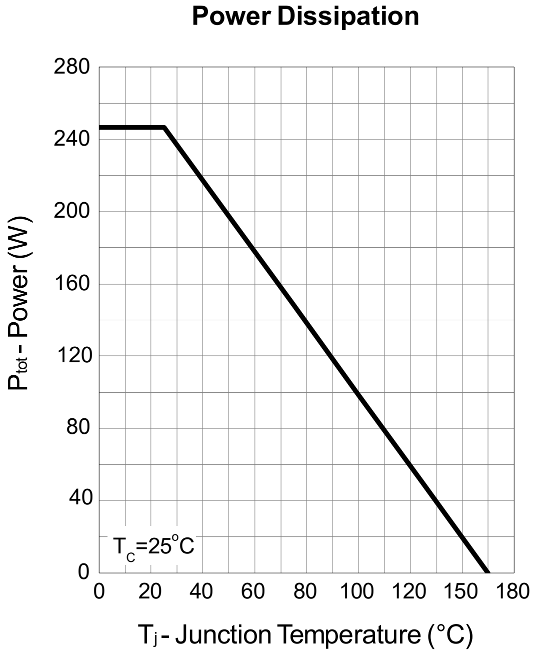
Symbol	Parameter	Test Condition	Min	Typ	Max	Unit
Off Characteristics						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V I_D=250μA	30	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=24V,V_{GS}=0V,Tj=25℃	-	-	1	μA
		V_{DS}=24V,V_{GS}=0V,Tj=85℃	-	-	30	μA
I_{GSS}	Gate-Body Leakage Current	V_{GS}=±20V,V_{DS}=0V	-	-	±100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS},I_D=250μA	1.0	1.7	2.5	V
$R_{DS(ON)}$	Drain-Source On-State Resistance (1)	V_{GS}=10V, I_D=50A	-	0.5	0.83	mΩ
		V_{GS}=4.5V, I_D=50A	-	0.8	1.16	mΩ
Dynamic Characteristics (2)						
Rg	Input resistance	V_{DS}=V_{GS}=0V, f=1.0MHz	-	1.2	-	Ω
C_{iss}	Input Capacitance	V_{DS}=15V, V_{GS}=0V, f=1.0MHz	-	9862		PF
C_{oss}	Output Capacitance		-	3910	-	PF
C_{rss}	Reverse Transfer Capacitance		-	415	-	PF
$t_{d(on)}$	Turn-on Delay Time	V_{DD}=15V, I_D=1A, V_{GEN}=10V, R_G=1.0Ω.	-	32	-	nS
t_r	Turn-on Rise Time		-	12	-	nS
$t_{d(off)}$	Turn-Off Delay Time		-	130	-	nS
t_f	Turn-Off Fall Time		-	36	-	nS
Q_g	Total Gate Charge	V_{DS}=15V, I_D=50A, V_{GS}=10V.	-	105	-	nC
Q_{gs}	Gate-Source Charge		-	15	-	nC
Q_{gd}	Gate-Drain Charge		-	29	-	nC
Drain-Source Diode Characteristics						
I_S	Maximun Body-Diode Continuous Current		-	384	-	A
I_{SM}	Maximun Body-Diode Pulsed Current		-	1260	-	A
V_{SD}	Diode Forward Voltage (1)	V_{GS}=0V,I_S=30A	-	0.78	1.3	V
t_{rr}	Reverse Recovery Time	I_S=50A, dI_S/dt=100A/μs	-	50	-	ns
Q_{rr}	Reverse Recovery Charge		-	75	-	nC

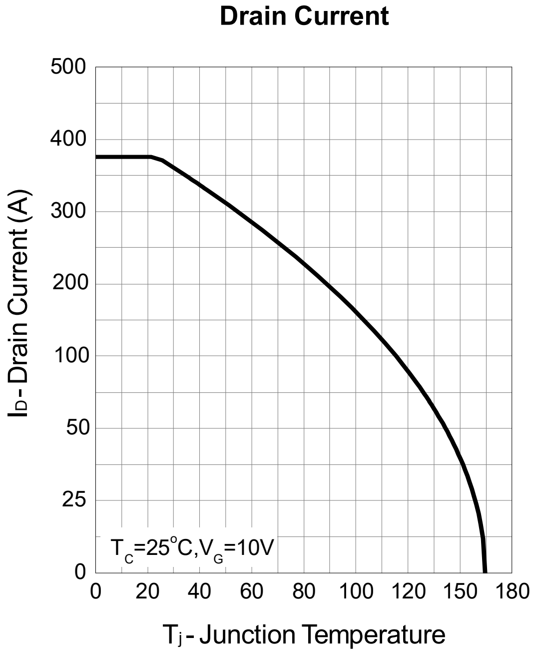
Note:

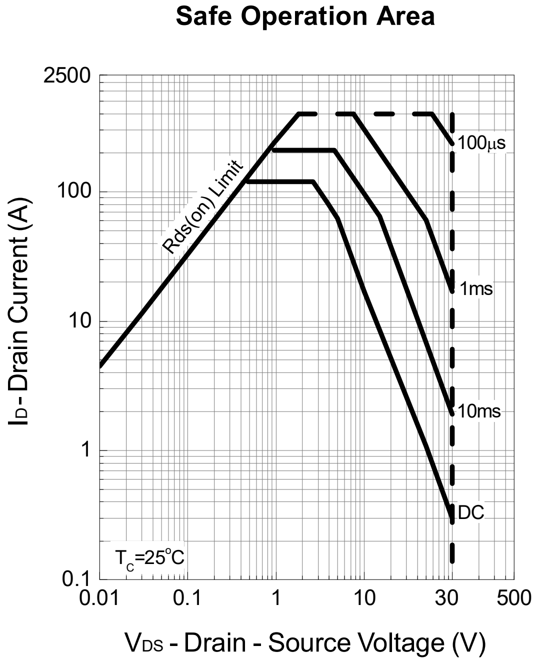
(1): Pulse test ; pulse width≤300μs, duty cycle≤2%.

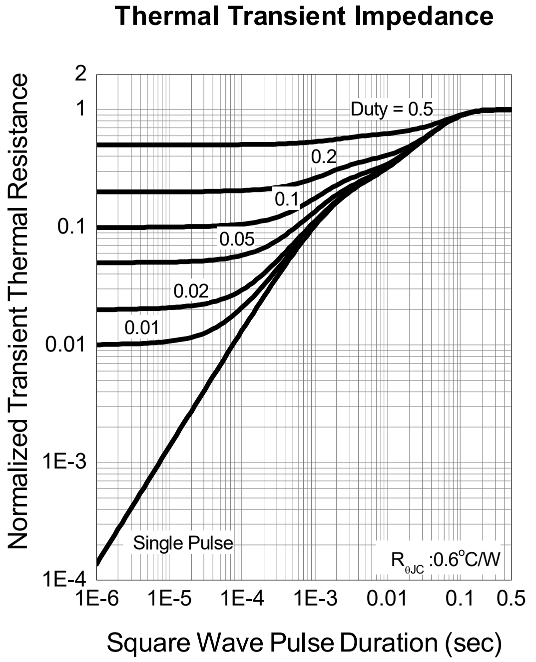
(2): Guaranteed by design, not subject to production testing.

Typical Operating Characteristics









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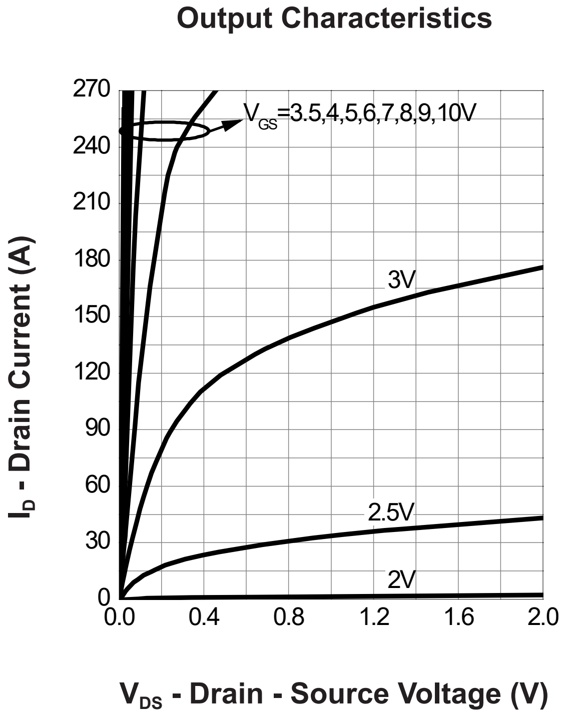
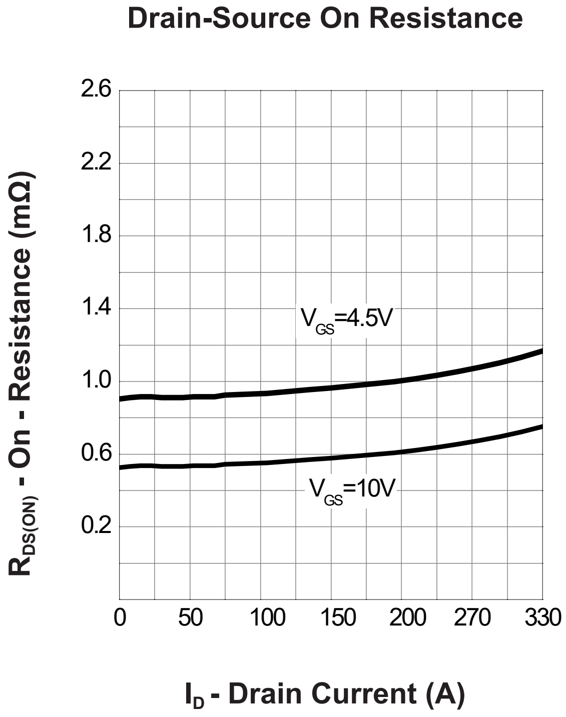
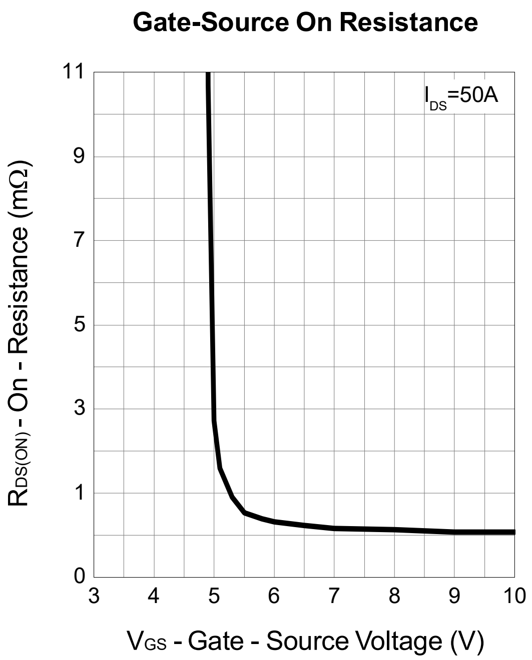
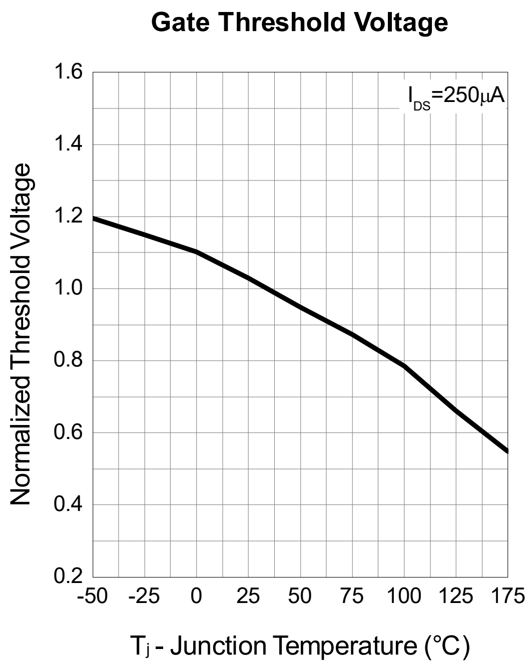
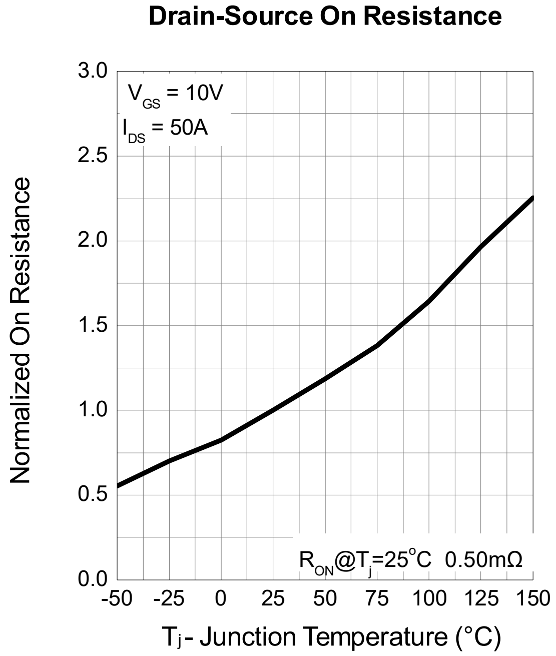


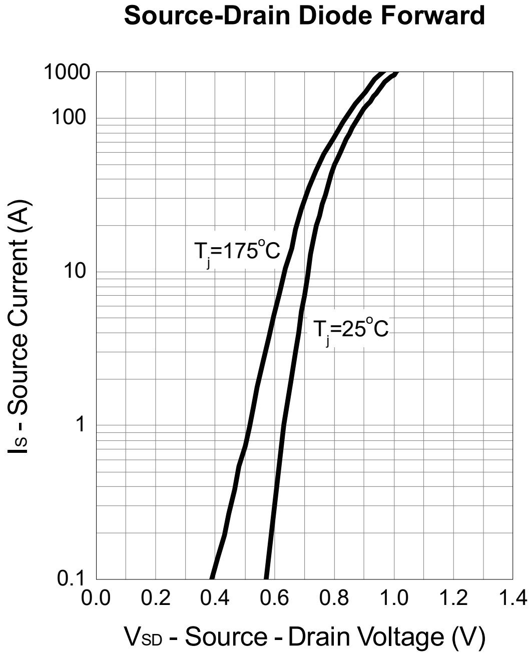


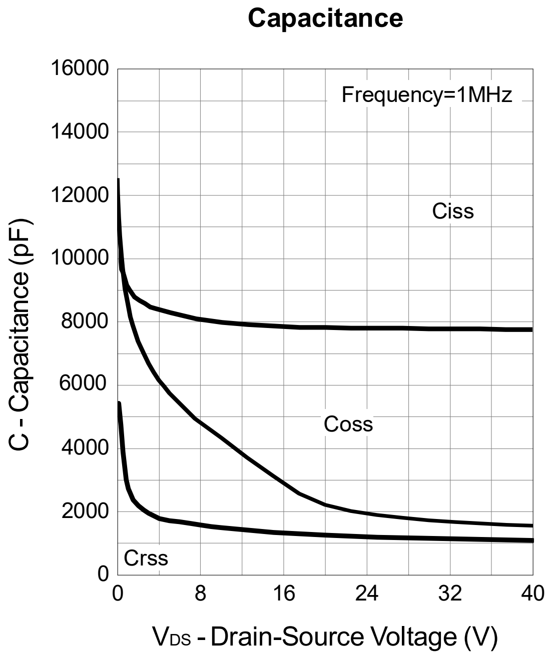


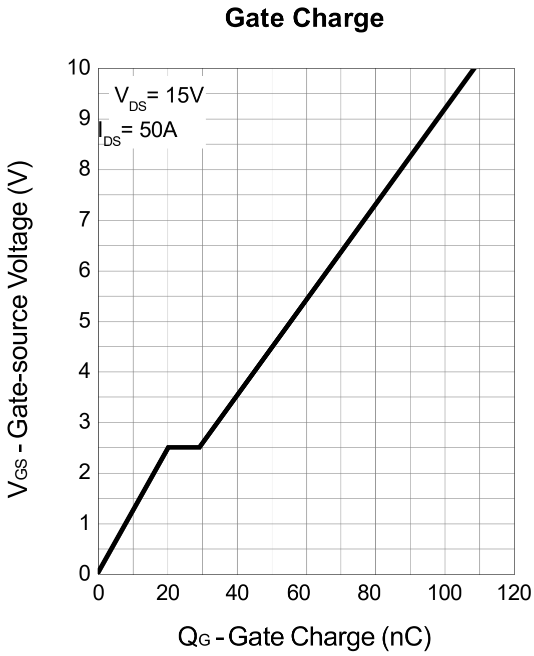


Typical Operating Characteristics









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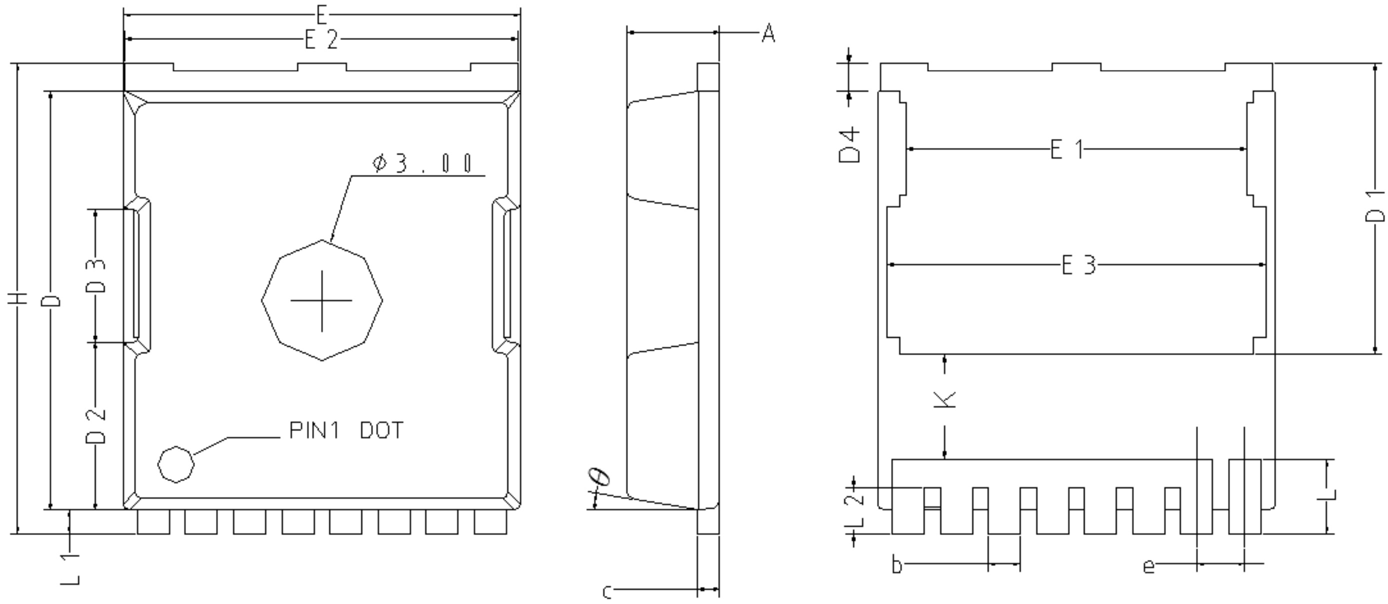
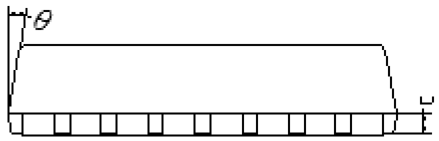


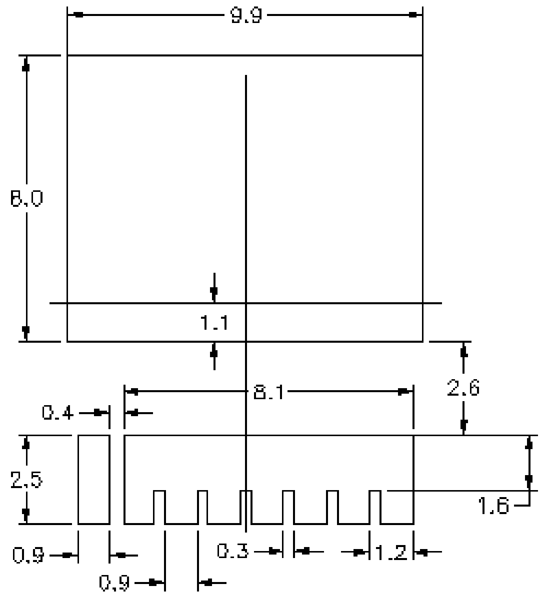
Top View Side View Bottom View



Side View

SYMBOLS	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	2.20	2.40	0.087	0.094
b	0.70	0.90	0.028	0.035
c	0.40	0.60	0.016	0.024
D	10.23	10.63	0.403	0.419
D1	7.05	7.45	0.278	0.293
D2	3.98	4.38	0.157	0.172
D3	3.10	3.50	0.122	0.138
D4	0.50	0.90	0.020	0.035
E	9.70	10.10	0.382	0.398
E1	8.30	8.70	0.327	0.343
E2	9.60	10.00	0.378	0.394
E3	9.26	9.66	0.365	0.380
H	11.53	11.93	0.454	0.470
e	1.2 BSC		0.0472 BSC	
K	2.43	2.83	0.096	0.111
L	1.65	2.05	0.065	0.081
L1	0.40	0.80	0.016	0.031
L2	0.95	1.35	0.037	0.053
θ	6°	10°	6°	10°

RECOMMENDED LAND PATTERN



unit:mm

Flow (wave) soldering (solder dipping)

Product	Peak Temperature	Dipping Time
Pb device	245℃±5℃	5sec±1sec
Pb-Free device	260℃+0/-5℃	5sec±1sec

This integrated circuit can be damaged by ESD UniverChip Corporation recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedure can cause damage. ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because very small parametric changes could cause the device not to meet its published specifications.

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