

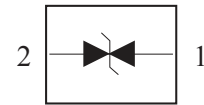
Protection in Portable Electronics Applications.

FEATURES

- Transient protection for data lines to
IEC 61000-4-2(ESD) : $\pm 8\text{kV}(\text{contact}), \pm 15\text{kV}(\text{Air})$
IEC 61000-4-4(EFT) : $2.5\text{kV}/50\text{A}$
IEC 61000-4-5(Surge) $4\text{A}(t_p=8/20\text{us})$
- Small package for use in portable electronics.
- Protects on I/O or power line.
- Low clamping voltage.
- Low leakage current.
- Non Suffix : ULP-2 Package ex) PG05TBUL2A-RTL/H
- Suffix **U** : ULP-2 Package& Qualified to AEC-Q101 ex) PG05TBUL2A-RTL/H**U**
- Suffix **R** : ULP-2(4) Package ex) PG05TBUL2A-RTL/H**R**
- Suffix **UR** : ULP-2(4) Package&Qualified to AEC-Q101 ex) PG05TBUL2A-RTL/H**UR**
- Suffix **P** : ULP-2(5) Package ex) PG05TBUL2A-RTL/H**P**
- Suffix **UP** : ULP-2(5) Package&Qualified to AEC-Q101 ex) PG05TBUL2A-RTL/H**UP**



ULP-2 (leadless-type)



1. ANODE 2. ANODE

Pin configurations (Bi-directional)

APPLICATIONS

- USB 2.0, 10/100/1000 Ethernet, FireWire, DVI, HDMI, S-ATA
- Mobile Communication
- Consumer Products (STB, MP3, DVD, DSC...)
- LCD-Display, Camera
- Notebooks and desktop computers, peripherals

PRODUCT DESCRIPTION

- Molding compound flammability rating : UL 94V-0
- Pb-Free, Halogen-Free, RoHs Compliant

Package dimensions (ULP-2)	Package dimensions (ULP-2(4))	Package dimensions (ULP-2(5))																																																				
<table border="1"> <thead> <tr> <th>DIM</th> <th>MILLIMETERS</th> </tr> </thead> <tbody> <tr><td>A</td><td>1.0±0.05</td></tr> <tr><td>B</td><td>0.6±0.05</td></tr> <tr><td>C</td><td>0.4±0.05</td></tr> <tr><td>Cl</td><td>0.38^{+0.02}/_{0.03}</td></tr> <tr><td>D</td><td>0.5±0.03</td></tr> <tr><td>E</td><td>0.25±0.03</td></tr> <tr><td>G</td><td>0.65±0.03</td></tr> <tr><td>H</td><td>0.05</td></tr> <tr><td>I</td><td>Max 0.05</td></tr> </tbody> </table>	DIM	MILLIMETERS	A	1.0±0.05	B	0.6±0.05	C	0.4±0.05	Cl	0.38 ^{+0.02} / _{0.03}	D	0.5±0.03	E	0.25±0.03	G	0.65±0.03	H	0.05	I	Max 0.05	<table border="1"> <thead> <tr> <th>DIM</th> <th>MILLIMETERS</th> </tr> </thead> <tbody> <tr><td>A</td><td>1.00±0.10</td></tr> <tr><td>B</td><td>0.60±0.10</td></tr> <tr><td>C</td><td>0.40±0.05</td></tr> <tr><td>D</td><td>0.50±0.05</td></tr> <tr><td>E</td><td>0.25±0.05</td></tr> <tr><td>G</td><td>Typ. 0.65</td></tr> <tr><td>H</td><td>0.05±0.05</td></tr> </tbody> </table>	DIM	MILLIMETERS	A	1.00±0.10	B	0.60±0.10	C	0.40±0.05	D	0.50±0.05	E	0.25±0.05	G	Typ. 0.65	H	0.05±0.05	<table border="1"> <thead> <tr> <th>DIM</th> <th>MILLIMETERS</th> </tr> </thead> <tbody> <tr><td>A</td><td>1.00±0.05</td></tr> <tr><td>B</td><td>0.60±0.05</td></tr> <tr><td>C</td><td>0.50±0.05</td></tr> <tr><td>D</td><td>0.50±0.03</td></tr> <tr><td>E</td><td>0.25±0.03</td></tr> <tr><td>G</td><td>0.65 BSC</td></tr> <tr><td>I</td><td>Max 0.03</td></tr> </tbody> </table>	DIM	MILLIMETERS	A	1.00±0.05	B	0.60±0.05	C	0.50±0.05	D	0.50±0.03	E	0.25±0.03	G	0.65 BSC	I	Max 0.03
DIM	MILLIMETERS																																																					
A	1.0±0.05																																																					
B	0.6±0.05																																																					
C	0.4±0.05																																																					
Cl	0.38 ^{+0.02} / _{0.03}																																																					
D	0.5±0.03																																																					
E	0.25±0.03																																																					
G	0.65±0.03																																																					
H	0.05																																																					
I	Max 0.05																																																					
DIM	MILLIMETERS																																																					
A	1.00±0.10																																																					
B	0.60±0.10																																																					
C	0.40±0.05																																																					
D	0.50±0.05																																																					
E	0.25±0.05																																																					
G	Typ. 0.65																																																					
H	0.05±0.05																																																					
DIM	MILLIMETERS																																																					
A	1.00±0.05																																																					
B	0.60±0.05																																																					
C	0.50±0.05																																																					
D	0.50±0.03																																																					
E	0.25±0.03																																																					
G	0.65 BSC																																																					
I	Max 0.03																																																					

ORDERING INFORMATION

Part Number	Qty per Reel	Reel Size	Marking code
PG05TBUL2A -RTL	10,000	7 inch	TS

PG05TBUL2A

MAXIMUM RATING (Ta=25°C)

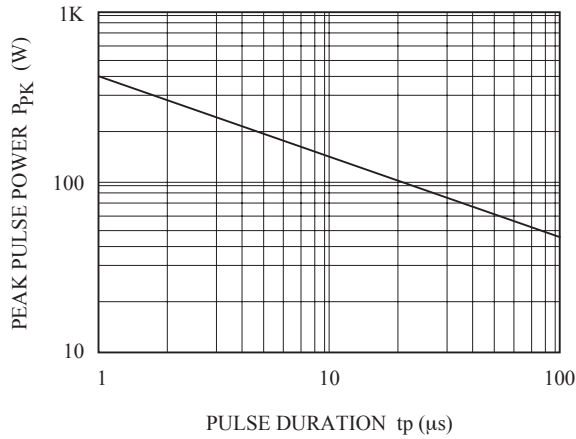
CHARACTERISTIC	SYMBOL	RATING	UNIT
Peak Pulse Power (tp=8/20 us)	P _{PK}	100	W
Peak Pulse Current (tp=8/20 us)	I _{PP}	4	A
Junction Temperature	T _J	150	°C
Storage Temperature	T _{stg}	-55~150	°C

ELECTRICAL CHARACTERISTICS (Ta=25°C)

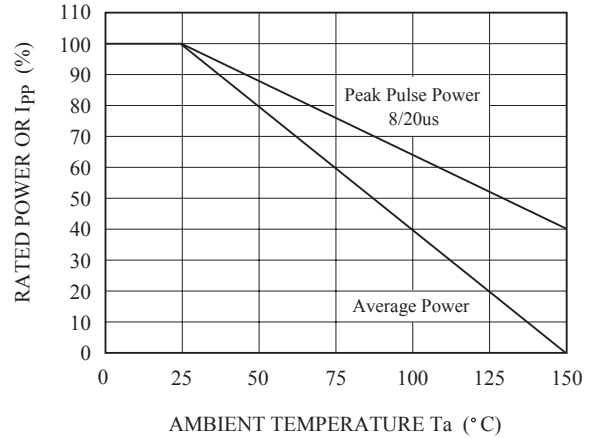
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Reverse Stand-Off Voltage	V _{RWM}	-	-	-	5	V
Reverse Breakdown Voltage	V _{BR}	I _t =1mA	7	8.8	10	V
Reverse Leakage Current	I _R	V _{RWM} =5V	-	10	100	nA
Clamping Voltage	V _C	I _{PP} =1A, tp=8/20us	-	13	20	V
		I _{PP} =4A, tp=8/20us	-	20	27	
Total Capacitance	C _J	V _R =0V, f=1MHz	-	0.45	0.6	pF

PG05TBUL2A

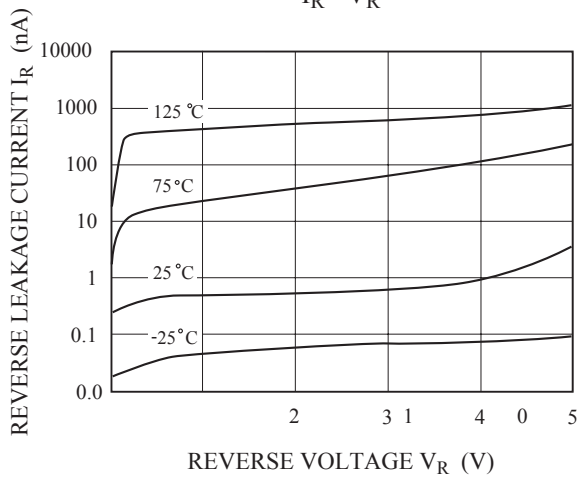
NON-REPETITIVE PEAK PULSE
POWER VS. PULSE TIME



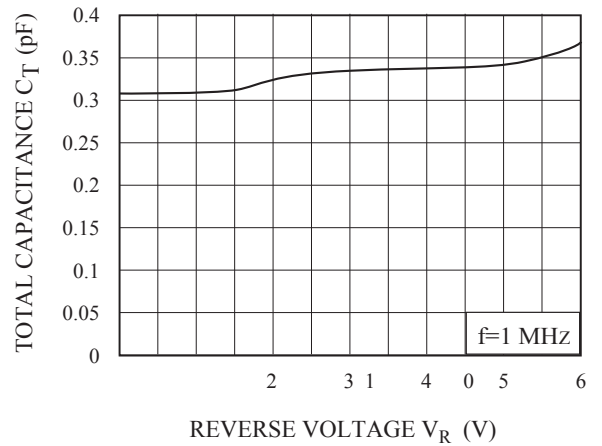
POWER DERATION CURVE



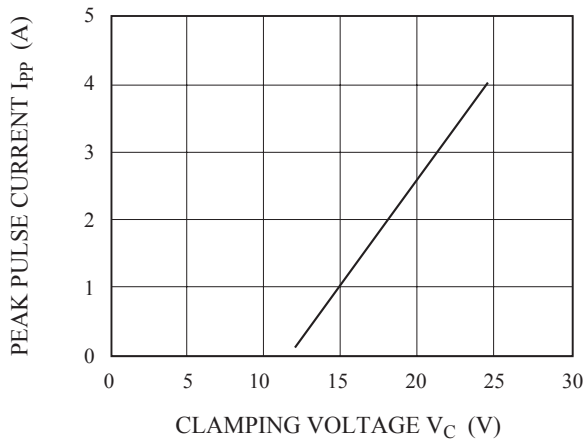
$I_R - V_R$



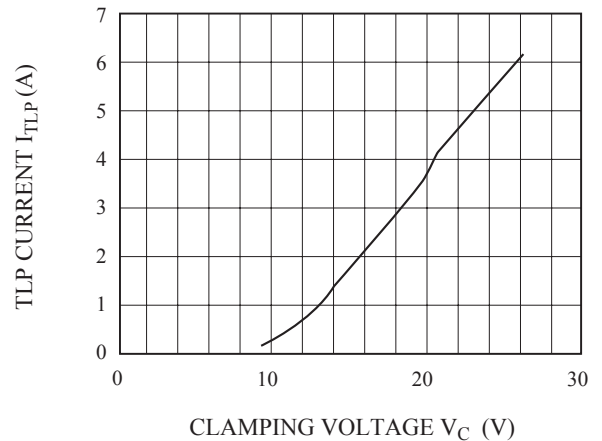
$C_T - V_R$



$V_C - I_{pp}$

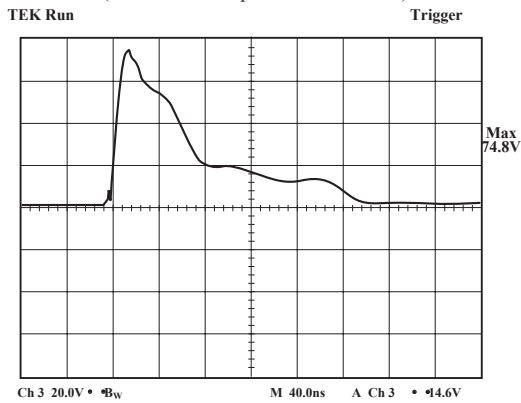


TLP CURVE



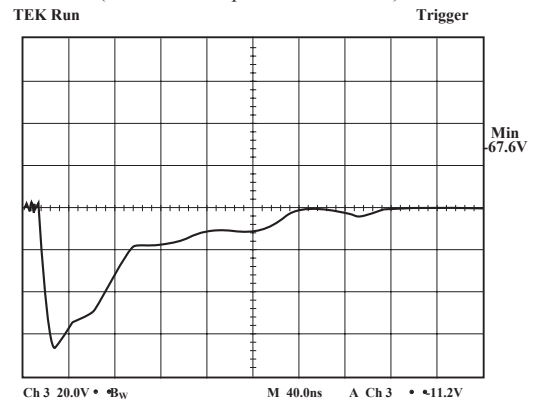
PG05TBUL2A

ESD Clamping
(+8 kV Contact per IEC 61000-4-2)



Note : Data is taken with a 10x attenuator

ESD Clamping
(-8 kV Contact per IEC 61000-4-2)



Note : Data is taken with a 10x attenuator

PULSE WAVEFORM

