Supporting Information

Bulk crystal growth and Nonlinear optical characterization of stilbazolium derivative crystal: 4-[2-(3, 4-Dimethoxyphenyl) ethenyl]-l methyl pyridinium tetraphenylborate (DSTPB) for NLO device fabrications

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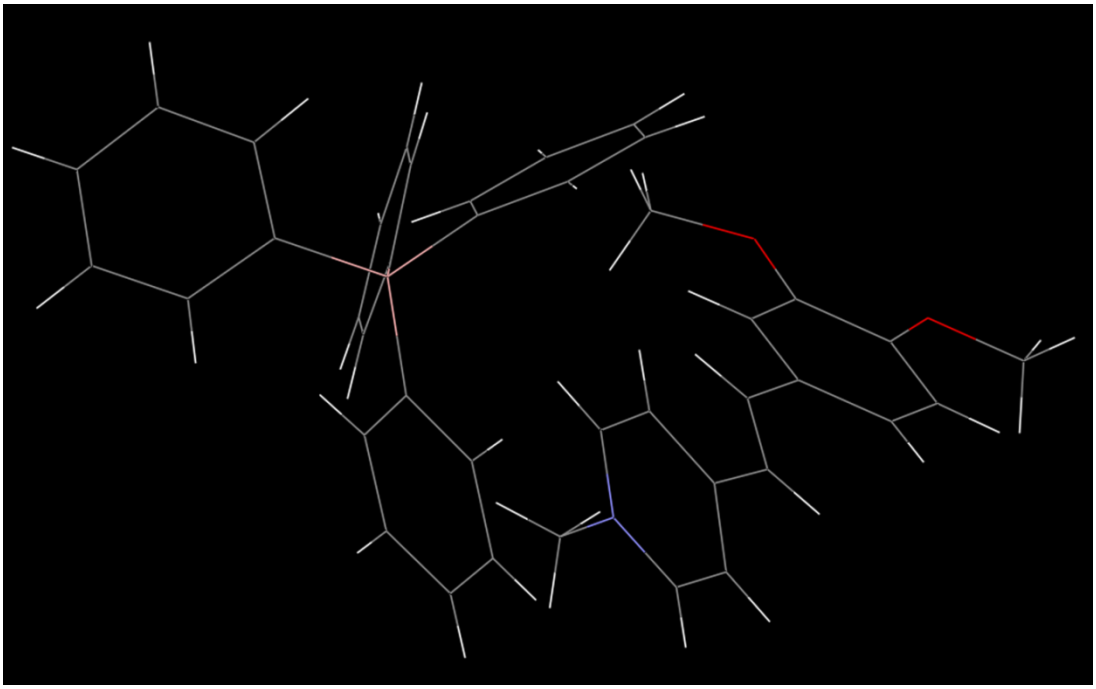

Fig. S1 ORTEP view of DSTPB.

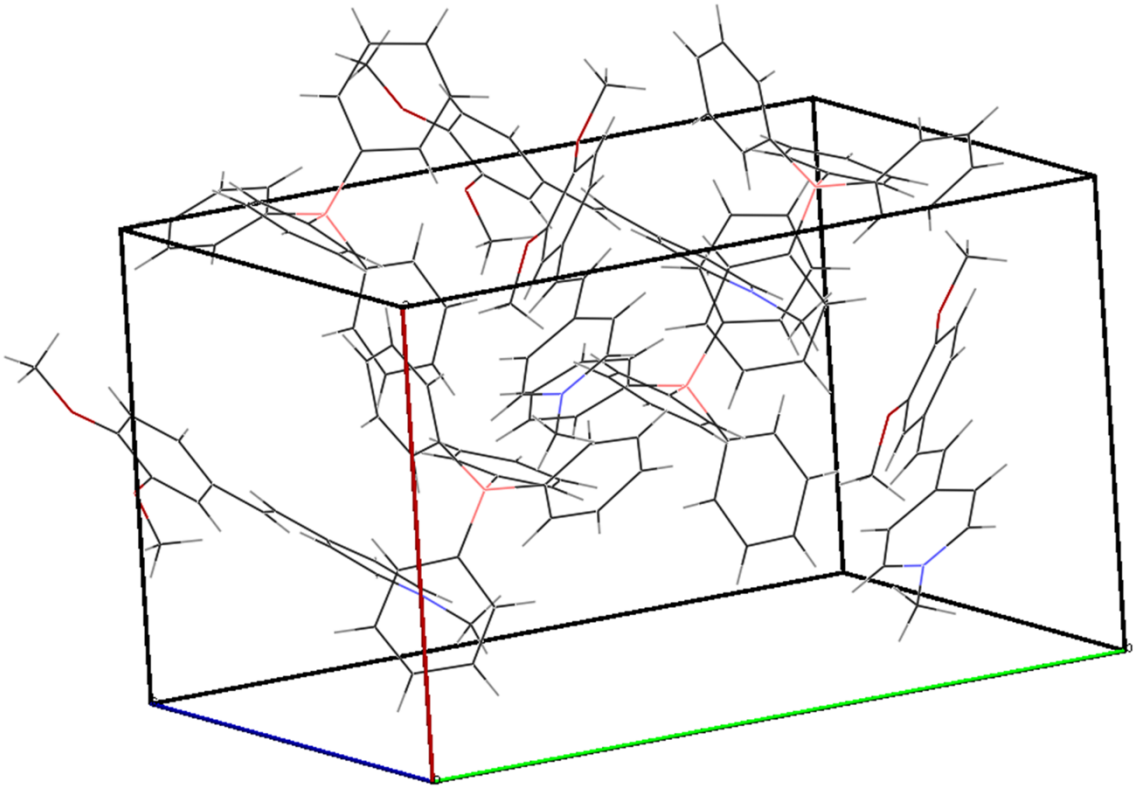

Fig. S2 Molecular packing diagram of DSTPB.

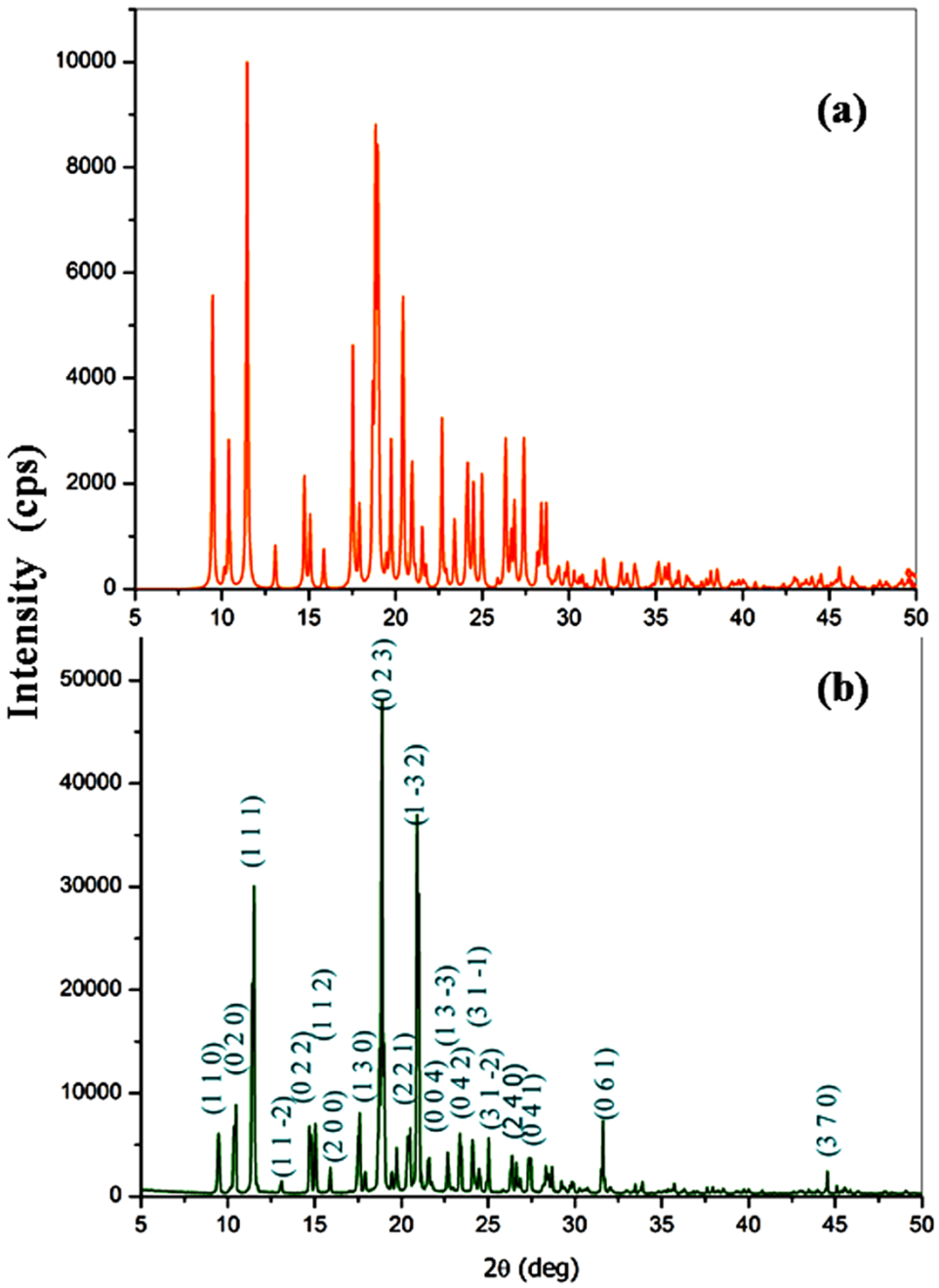

Fig. S3 Powder XRD patterns of DSTPB.

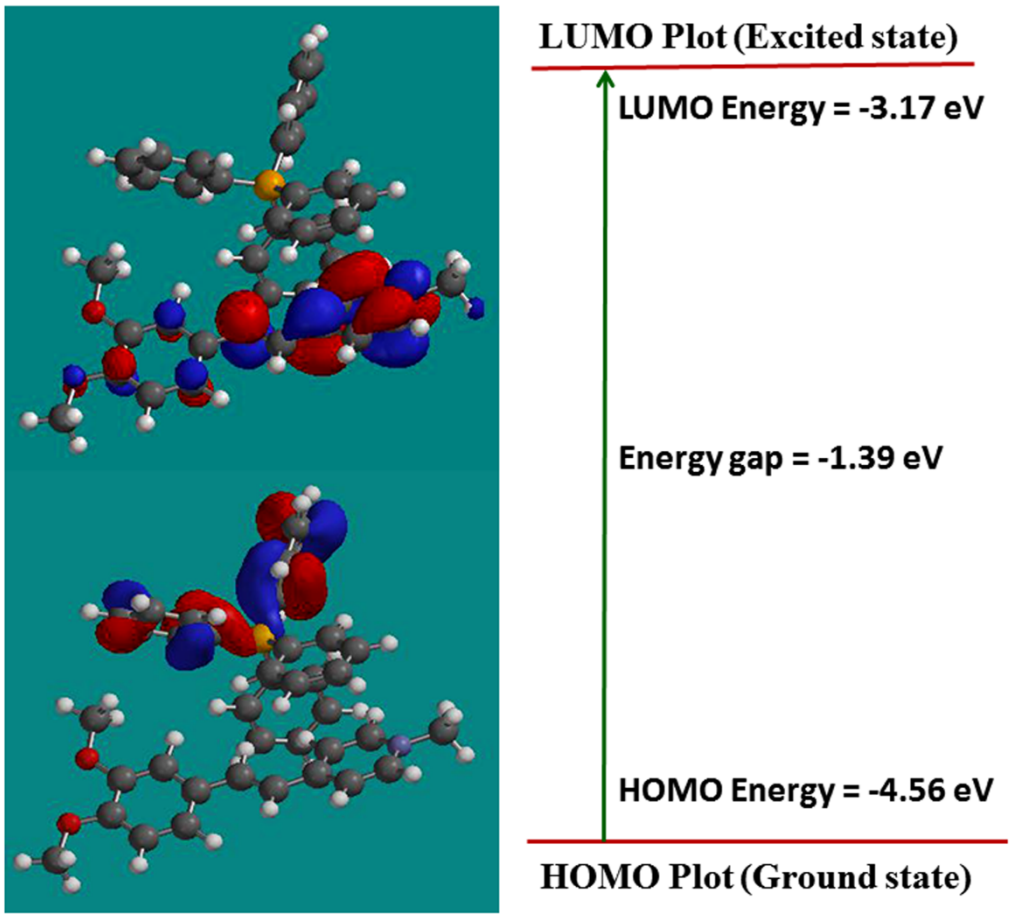

Fig. S4 The frontier molecular orbital for DSTPB.

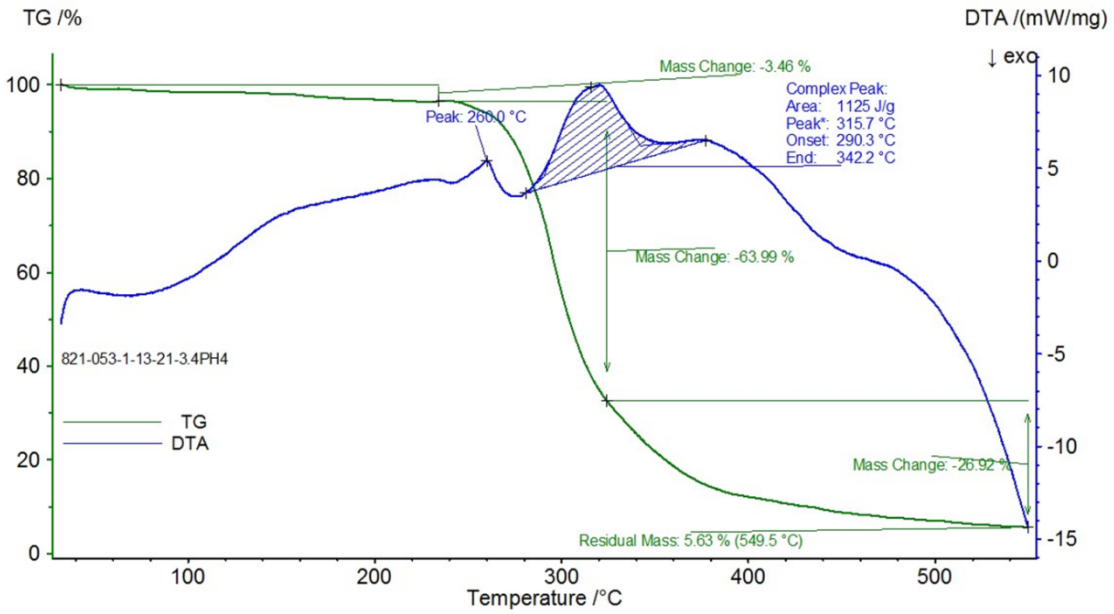

Fig. S5 TG/DTA curve of DSTPB.

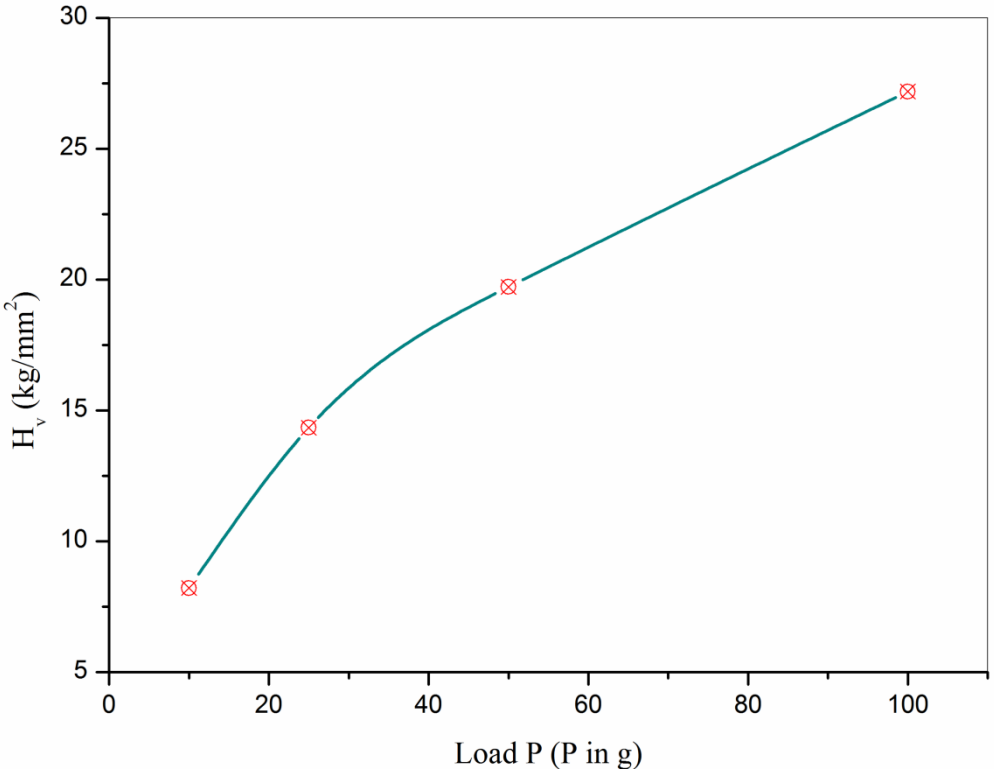

Fig. S6 Variations of microhardness (H_v) with applied load P.

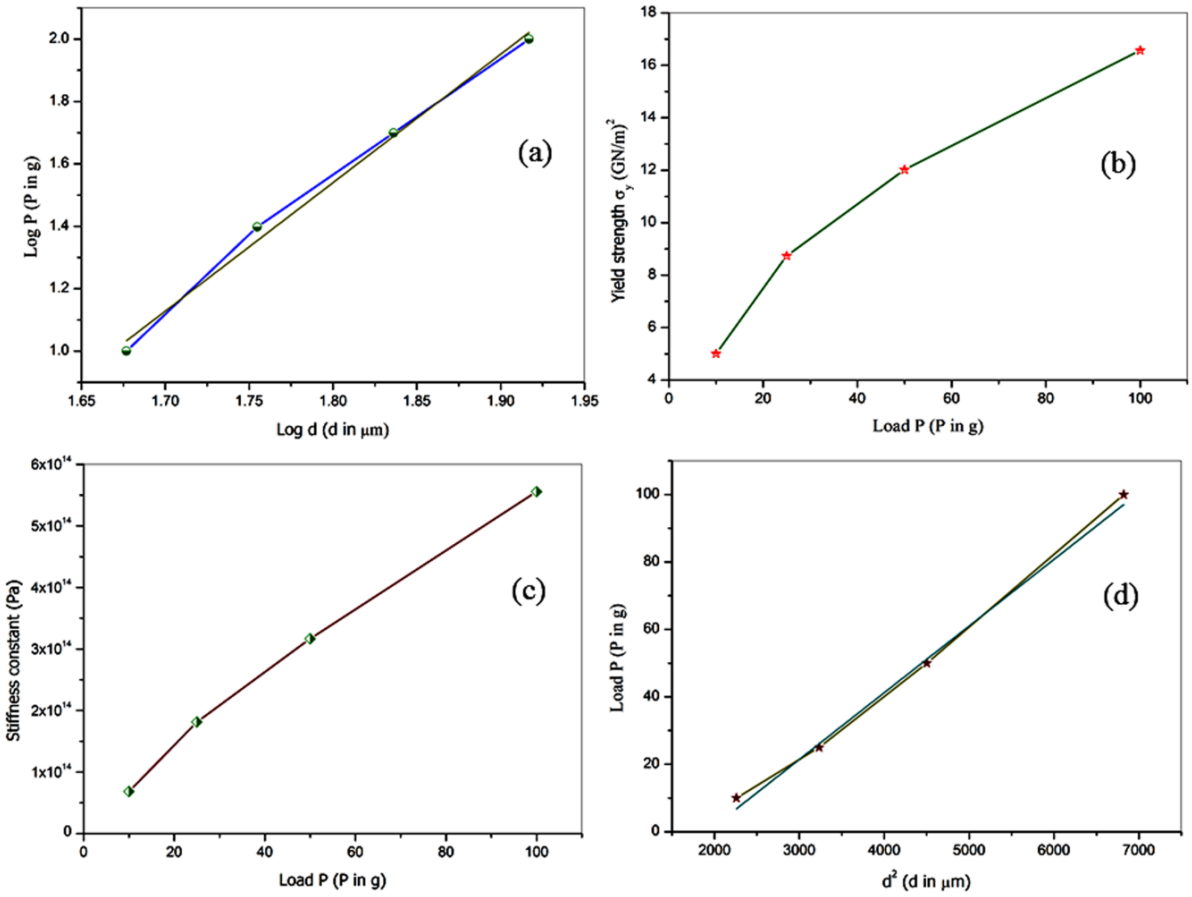

Fig. S7 (a) Meyer's plot, (b) Variation of yield strength with respect to applied load, (c) variation of stiffness constant vs. applied load, and (d) plot of load P vs. d^2.

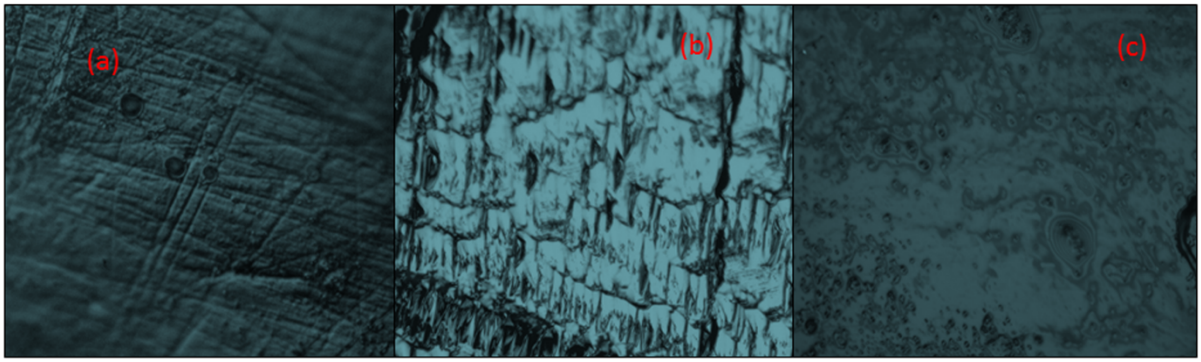

Fig. S8 (a) As- grown crystal surface, (b) Etching time 20 s, and(c) 40 s using DMF as solvent.

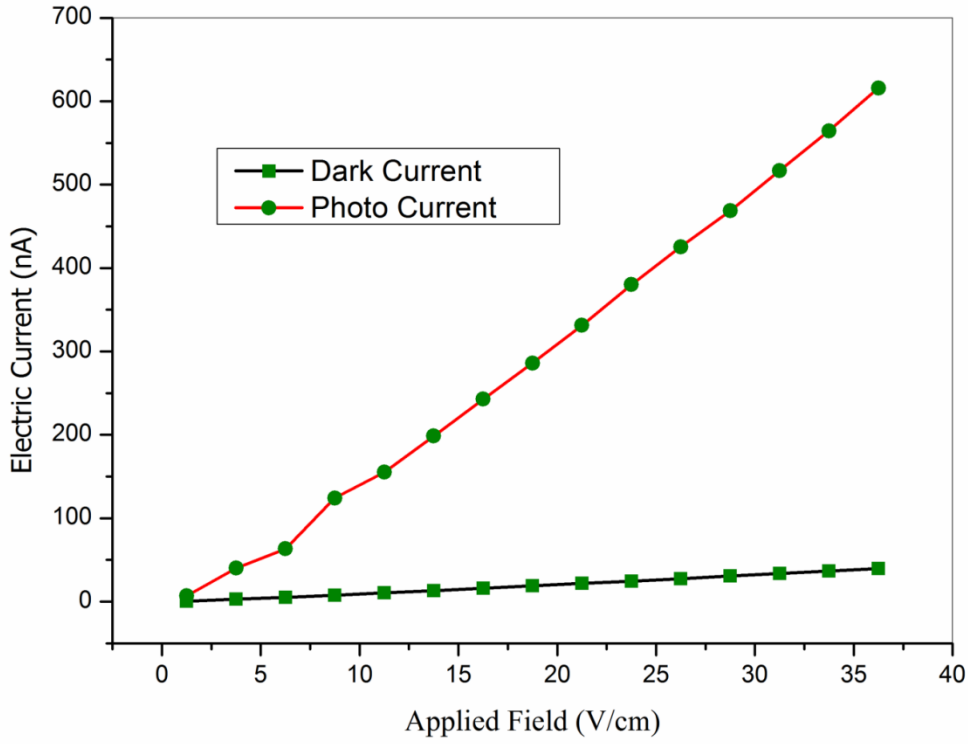

Fig. S9 Field dependent photoconductivity of DSTPB crystal.

Table S1 Results of constant W, $A_{1,}$ and H_o for DSTPB.

Hays–Kendall approach	**Results**
Resistance pressure (W)	-26.23 (g)
Load independent constant (A_1)	0.034 ($g/\mu m^2$)
Corrected hardness (H_o)	63 ($g/\mu m^2$)

Table S2. Electric property for the grown DSTPB.

Solid state parameters	**Values for DSTPB crystal**	**Values for KDP crystal**
Plasma energy (eV)	19.2	17.33
Penn gap (eV)	1.4	2.39
Fermi energy (eV)	15.1	12.02
Eelectronic polarizability (α) using Penn analysis (cm^3)	1.91 x 10^{-22}	2.14x10^{-23}
Eelectronic polarizability (α) using Clausiuse Mosotti equation (cm^3)	1.92 x 10^{-22}	2.18x10^{-23}