2. Noise Suppression Devices SPIKE KILLER™

RoHS compliant products

Standard Specifications

SPIKEK KILLER™

Type No.	Finished Dimensions *1 [mm]			Core Size [mm] *2			Effective core cross section *2 Ae[mm²]	Mean Flux Path Length *2 Lm [mm]	Total Flux *3 φc[μWb]min	Coercive Force *3 Hc[A/m]	Rectangular Ratio *3 Br/Bm[%]	Insulating Cover
	O.D.	I.D.	H.T	O.D.	I.D.	H.T						
SS7X4X3W	9.1	3.3	4.8	7.5	4.5	3.0	3.38	18.8	3.15	22max	90min	PET case Black
SS10X7X4.5W	11.5	5.8	6.6	10.0	7.0	4.5	5.06	26.7	4.73			
SS14X8X4.5W	15.8	6.8	6.6	14.0	8.0	4.5	10.1	34.6	9.46			

*1 Tolerance ±0.2[mm] *2 Reference value
*3 Measuring condition:100kHz、80A/m (sine wave), R.T.

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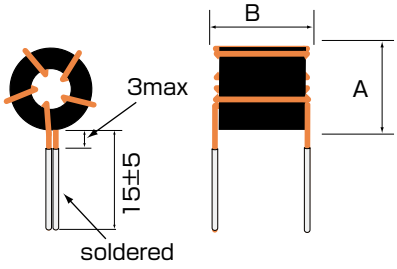
☆ "SPIKE KILLER™ " : Resistered in U.S.A., France, Germany, U.K., Japan.

Wired SPIKE KILLER™ and AMOBEADS™

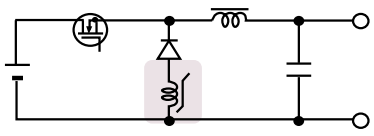
Type No.	Core No.	Current*1 [A]	Wire Dia. [φmm]	N [turn]	Flux*2 [uWb]	Dimensions[mm] A max	Dimensions[mm] B max
AB44DY0305	AB4x2x4.5DY	0.5	0.3	5	13.5	7	9
AB44DY0307	AB4x2x4.5DY	0.5	0.3	7	18.9	7	9
SS07S0309	SS7x4x3W	0.5	0.3	9	28.3	12	8
AB34DY0402	AB3x2x4.5DY	1.0	0.4	2	2.6	6	9
AB34DY0403	AB3x2x4.5DY	1.0	0.4	3	3.9	6	9
AB44DY0402	AB4x2x4.5DY	1.0	0.4	2	5.4	7	9
AB44DY0403	AB4x2x4.5DY	1.0	0.4	3	8.1	7	9
AB44DY0404	AB4x2x4.5DY	1.0	0.4	4	10.8	7	9
SS07S0507	SS7x4x3W	1.5	0.5	7	22.1	12	8
SS07S0510	SS7x4x3W	1.5	0.5	10	31.5	12	8
SS07S0515	SS7x4x3W	1.5	0.5	15	47.3	12	8
SS10S05105	SS10x7x4.5W	1.5	0.5	5	23.7	14	10
SS10S05107	SS10x7x4.5W	1.5	0.5	7	33.1	14	10
SS10S05110	SS10x7x4.5W	1.5	0.5	10	47.3	14	10
SS10S09110	SS10x7x4.5W	5	0.9	10	47.3	15	11
SS14S09108	SS14x8x4.5W	5	0.9	8	75.7	20	11
SS14S09205	SS14x8x4.5W	10	0.9x2	5	47.3	20	11



Type of wire:1UEW

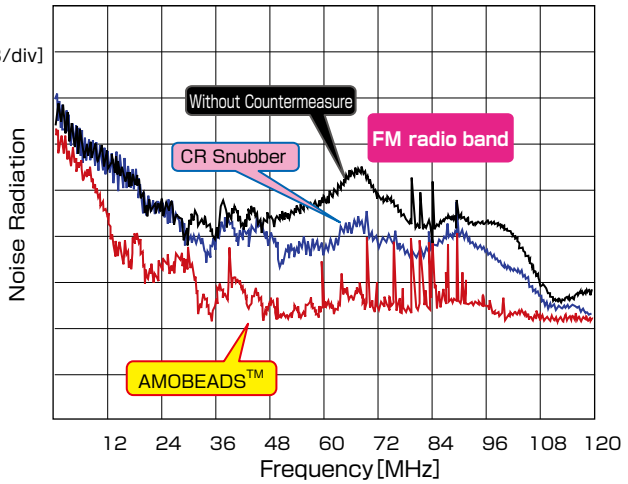
*1: Typical Value, using a cross section of winding wire
*2:Total Flux of core × turn

Example of applied circuit and it's characterisitic



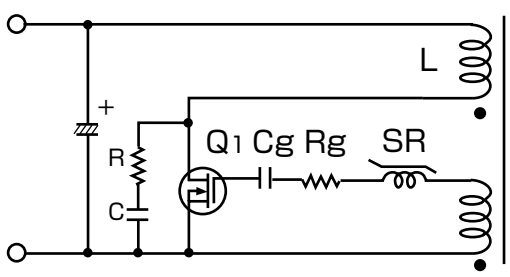
Chopper Converter

Testing Condition of Radiant Noise Measurment	
Input	20[V]
Output	12[V]／2[A]
Frequency	90kHz
Rectifier	FRD
Detector	Simple Loop Antenna



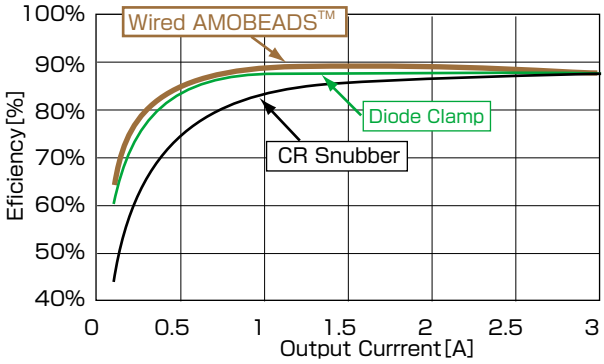
Examples of Applied Circuits and Effects of Noise Suppression

Example Circuit:Self-Exiting Single Flyback(RCC)



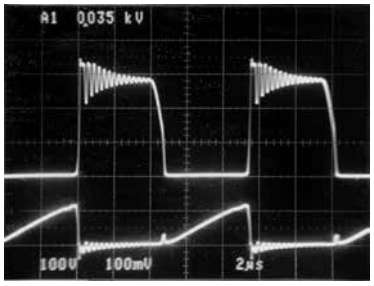
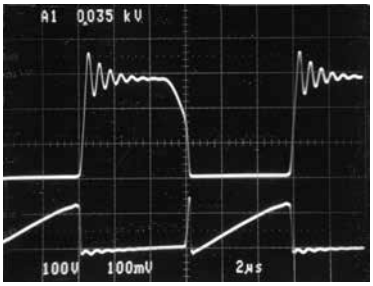
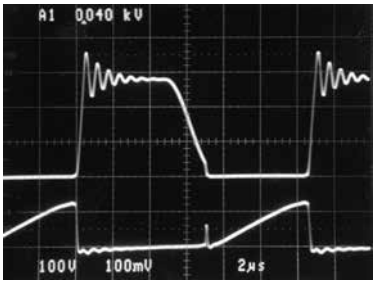
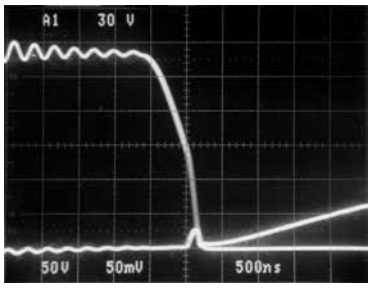
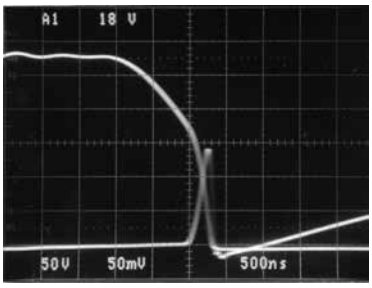
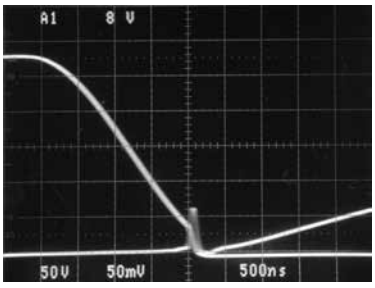
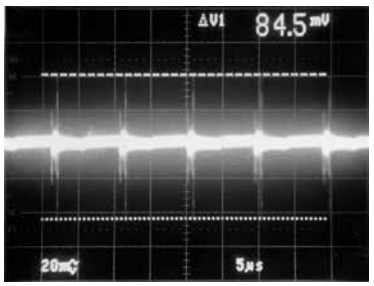
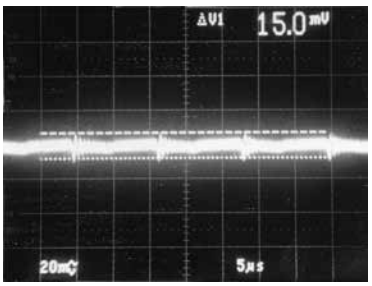
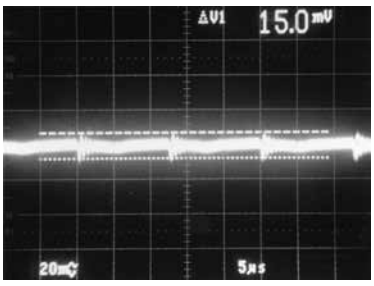
SR:Wired AMOBEADS™

JPN.P. No. 3190775 Toshiba Materials Co. Ltd.
USP No. 5745353 〃



Power Supply Efficiency(Vin:DC140V, Vo:24V)

Example of Effects(Delaytor)

	Diode Clamp (68kΩ、0.022μF)	CR Snubber (10Ω、1500pF)	Wired AMOBEADS™ AB44DY0307 applied
Swirching Waveform Vds 100V/div Id 1A/div			
Turn-on Waveform Vds 100V/div Id 0.5A/div			
Output Voltage Noise Vn 20mV/div			

Wired AMOBEADS™ delay the turn-on time of the MOSFET when they are inserted between the gate of the MOSFET and drive winding on the primary side of the self-exiting single flyback (RCC). The wired AMOBEADS™ reduce both noise, due to surge current and switching loss, by turning on the switching element at the point when the voltage of the transformer becomes low, utilizing the the LC resonance phenomenon induced by inductance L of the primary winding of the transformer and a snubber capacitor C.

Note : The diode clamp circuit has a tendency to increase the out put noise.