MALLORY

MALLORY SONALERT PRODUCTS, INC.

Literature
APPLICATION
Guide

IEC60601-1-8 Medical Alarms (with Circuitry)

- **UL File # MDAF2.E480572**
- **cUL File # MDAF8.E480572**
- **Models available with speakers (MSS & SBS Series) & piezoelectric transducers (SBT Series).**
- **Priority tone & melody tone models meet all the requirements of IEC 60601-1-8 Tables 3 & 4.**
- **Melody tone models additionally meet the requirements of IEC 60601-1-8 Annex F and Tables A.1 & A.2.**
- **Continuous tone models meet the freq. and rise & fall time listed in Table 4, but the user must control the on & off times to meet the other requirements of IEC 60601-1-8 Tables 3 & 4.**

45mm Piezoelectric Transducer (With Circuitry)

Part Number Prefix	Typical Sound Level @ 10 cm (dBa)	Operating Voltage (Vdc)	Ave Current (mA)	Max Instant Current (mA)
SBT5	85 to 95	3.3 to 5	35	300
SBT12	85 to 95	9 to 12	25	75

Part Number Suffix	Termination Type	Part Size Dia x Hgt (mm)
PC	PC Pins (2 to 5 pins)	44.5 x 14.25
FL	Flange with 2 wires	64.5 x 14.25

Part Number	Rated Voltage	Melody Type	1st Tone Medical	2nd Tone Medical	3rd Tone Medical	Mounting Type
Single Continuous Medical Tone						
SBT5LM0PC	5 Vdc	See Note	Continuous	N/A	N/A	2 PC Pins
SBT5LM0FL	5 Vdc	See Note	Continuous	N/A	N/A	Flange
SBT12M0PC	12 Vdc	See Note	Continuous	N/A	N/A	2 PC Pins
SBT12M0FL	12 Vdc	See Note	Continuous	N/A	N/A	Flange

Note: Continuous tone models meet the freq. and rise & fall times listed in IEC 60601-1-8 Table 4, but the user must control the on & off times to meet the other requirements of Tables 3 & 4

45mm Piezoelectric Transducer (With Circuitry)

Part Number	Rated Voltage	Melody Type	1st Tone Medical	2nd Tone Medical	3rd Tone Medical	Mounting Type
Single Low Priority Medical Tone						
SBT5GLPC	5 Vdc	Use for Any Melody	Low Priority	N/A	N/A	2 PC Pins
SBT5GLFL	5 Vdc	Use for Any Melody	Low Priority	N/A	N/A	Flange
SBT12GLPC	12 Vdc	Use for Any Melody	Low Priority	N/A	N/A	2 PC Pins
SBT12GLFL	12 Vdc	Use for Any Melody	Low Priority	N/A	N/A	Flange

Part Number	Rated Voltage	Melody Type	1st Tone Medical	2nd Tone Medical	3rd Tone Medical	Mounting Type
Single Medium Priority Medical Tone						
SBT5*MPC	5 Vdc	See Note	Medium Priority	N/A	N/A	2 PC Pins
SBT5*MFL	5 Vdc	See Note	Medium Priority	N/A	N/A	Flange
SBT12*MPC	12 Vdc	See Note	Medium Priority	N/A	N/A	2 PC Pins
SBT12*MFL	12 Vdc	See Note	Medium Priority	N/A	N/A	Flange

Part Number	Rated Voltage	Melody Type	1st Tone Medical	2nd Tone Medical	3rd Tone Medical	Mounting Type
Single High Priority Medical Tone						
SBT5*HPC	5 Vdc	See Note	High Priority	N/A	N/A	2 PC Pins
SBT5*HFL	5 Vdc	See Note	High Priority	N/A	N/A	Flange
SBT12*HPC	12 Vdc	See Note	High Priority	N/A	N/A	2 PC Pins
SBT12*HFL	12 Vdc	See Note	High Priority	N/A	N/A	Flange

Note: ***** = **G** (General), **C** (Cardiac), **D** (Drug or Fluid Delivery), **E** (Equipment/Supply Failure), **P** (Artificial Perfusion), **T** (Temp-Energy), **V** (Ventilation), or **X** (Oxygen)

Part Number	Rated Voltage	Melody Type	1st Tone Medical	2nd Tone Medical	3rd Tone Medical	Mounting Type
Three Priority Medical Tones						
SBT5LM1PC	5 Vdc	General	Low Priority	Med Priority	High Priority	5 PC Pins
SBT5LMMCPC	5 Vdc	Cardiac	Low Priority	Med Priority	High Priority	5 PC Pins
SBT5LMMDPC	5 Vdc	Drug or Fluid Delivery	Low Priority	Med Priority	High Priority	5 PC Pins
SBT5LMMEPC	5 Vdc	Equipment Supply Failure	Low Priority	Med Priority	High Priority	5 PC Pins
SBT5LMMPPC	5 Vdc	Artificial Perfusion	Low Priority	Med Priority	High Priority	5 PC Pins
SBT5LMMTPC	5 Vdc	Temp-Energy Delivery	Low Priority	Med Priority	High Priority	5 PC Pins
SBT5LMMVPC	5 Vdc	Ventilation	Low Priority	Med Priority	High Priority	5 PC Pins
SBT5LMMXPC	5 Vdc	Oxygen	Low Priority	Med Priority	High Priority	5 PC Pins
SBT12M1PC	12 Vdc	General	Low Priority	Med Priority	High Priority	5 PC Pins
SBT12MMCPC	12 Vdc	Cardiac	Low Priority	Med Priority	High Priority	5 PC Pins
SBT12MMDPC	12 Vdc	Drug or Fluid Delivery	Low Priority	Med Priority	High Priority	5 PC Pins
SBT12MMEPC	12 Vdc	Equipment Supply Failure	Low Priority	Med Priority	High Priority	5 PC Pins
SBT12MMPPC	12 Vdc	Artificial Perfusion	Low Priority	Med Priority	High Priority	5 PC Pins
SBT12MMTPC	12 Vdc	Temp-Energy Delivery	Low Priority	Med Priority	High Priority	5 PC Pins
SBT12MMVPC	12 Vdc	Ventilation	Low Priority	Med Priority	High Priority	5 PC Pins
SBT12MMXPC	12 Vdc	Oxygen	Low Priority	Med Priority	High Priority	5 PC Pins

45mm Piezoelectric Transducer (With Circuitry)

Part Number	Rated Voltage	Melody Type	1st Tone Medical	2nd Tone Medical	3rd Tone 2500 Hz	Mounting Type
Two Priority Medical Tones & One Other Non-Medical Tone						
SBT5*LHCTPC	5 Vdc	See Note	Low Priority	High Priority	Continuous	5 PC Pins
SBT5*LHFPPC	5 Vdc	See Note	Low Priority	High Priority	Fast Pulse	5 PC Pins
SBT5*LHMPPC	5 Vdc	See Note	Low Priority	High Priority	Medium Pulse	5 PC Pins
SBT5*LHSPPC	5 Vdc	See Note	Low Priority	High Priority	Slow Pulse	5 PC Pins
SBT5*LMCTPC	5 Vdc	See Note	Low Priority	Med Priority	Continuous	5 PC Pins
SBT5*LMFPPC	5 Vdc	See Note	Low Priority	Med Priority	Fast Pulse	5 PC Pins
SBT5*LMMPPC	5 Vdc	See Note	Low Priority	Med Priority	Medium Pulse	5 PC Pins
SBT5*LMSPPC	5 Vdc	See Note	Low Priority	Med Priority	Slow Pulse	5 PC Pins
SBT5*MHCTPC	5 Vdc	See Note	Med Priority	High Priority	Continuous	5 PC Pins
SBT5*MHFPPC	5 Vdc	See Note	Med Priority	High Priority	Fast Pulse	5 PC Pins
SBT5*MHMPPC	5 Vdc	See Note	Med Priority	High Priority	Medium Pulse	5 PC Pins
SBT5*MHSPPC	5 Vdc	See Note	Med Priority	High Priority	Slow Pulse	5 PC Pins
SBT12*LHCTPC	12 Vdc	See Note	Low Priority	High Priority	Continuous	5 PC Pins
SBT12*LHFPPC	12 Vdc	See Note	Low Priority	High Priority	Fast Pulse	5 PC Pins
SBT12*LHMPPC	12 Vdc	See Note	Low Priority	High Priority	Medium Pulse	5 PC Pins
SBT12*LHSPPC	12 Vdc	See Note	Low Priority	High Priority	Slow Pulse	5 PC Pins
SBT12*LMCTPC	12 Vdc	See Note	Low Priority	Med Priority	Continuous	5 PC Pins
SBT12*LMFPPC	12 Vdc	See Note	Low Priority	Med Priority	Fast Pulse	5 PC Pins
SBT12*LMMPPC	12 Vdc	See Note	Low Priority	Med Priority	Medium Pulse	5 PC Pins
SBT12*LMSPPC	12 Vdc	See Note	Low Priority	Med Priority	Slow Pulse	5 PC Pins
SBT12*MHCTPC	12 Vdc	See Note	Med Priority	High Priority	Continuous	5 PC Pins
SBT12*MHFPPC	12 Vdc	See Note	Med Priority	High Priority	Fast Pulse	5 PC Pins
SBT12*MHMPPC	12 Vdc	See Note	Med Priority	High Priority	Medium Pulse	5 PC Pins
SBT12*MHSPPC	12 Vdc	See Note	Med Priority	High Priority	Slow Pulse	5 PC Pins

Note: ***** = **G** (General), **C** (Cardiac), **D** (Drug or Fluid Delivery), **E** (Equipment/Supply Failure), **P** (Artificial Perfusion), **T** (Temp-Energy), **V** (Ventilation), or **X** (Oxygen)

Part Number	Voltage Rating	Melody Type	1st Tone Medical	2nd Tone 2500 Hz	3rd Tone 2500 Hz	Mounting Type
One Priority Medical Tone & Two Other Non-Medical Tones						
SBT5GLCFPPC	5 Vdc	Use for Any Melody	Low Priority	Continuous	Fast Pulse	5 PC Pins
SBT5GLCMPPC	5 Vdc	Use for Any Melody	Low Priority	Continuous	Medium Pulse	5 PC Pins
SBT5GLCSPPC	5 Vdc	Use for Any Melody	Low Priority	Continuous	Slow Pulse	5 PC Pins
SBT12GLCFPPC	12 Vdc	Use for Any Melody	Low Priority	Continuous	Fast Pulse	5 PC Pins
SBT12GLCMPPC	12 Vdc	Use for Any Melody	Low Priority	Continuous	Medium Pulse	5 PC Pins
SBT12GLCSPPC	12 Vdc	Use for Any Melody	Low Priority	Continuous	Slow Pulse	5 PC Pins
SBT5*HCFPPC	5 Vdc	See Note	High Priority	Continuous	Fast Pulse	5 PC Pins
SBT5*HCMPPC	5 Vdc	See Note	High Priority	Continuous	Medium Pulse	5 PC Pins
SBT5*HCSPPC	5 Vdc	See Note	High Priority	Continuous	Slow Pulse	5 PC Pins
SBT5*MCFPPC	5 Vdc	See Note	Med Priority	Continuous	Fast Pulse	5 PC Pins
SBT5*MCMPPC	5 Vdc	See Note	Med Priority	Continuous	Medium Pulse	5 PC Pins
SBT5*MCSPPC	5 Vdc	See Note	Med Priority	Continuous	Slow Pulse	5 PC Pins
SBT12*HCFPPC	12 Vdc	See Note	High Priority	Continuous	Fast Pulse	5 PC Pins
SBT12*HCMPPC	12 Vdc	See Note	High Priority	Continuous	Medium Pulse	5 PC Pins
SBT12*HCSPPC	12 Vdc	See Note	High Priority	Continuous	Slow Pulse	5 PC Pins
SBT12*MCFPPC	12 Vdc	See Note	Med Priority	Continuous	Fast Pulse	5 PC Pins
SBT12*MCMPPC	12 Vdc	See Note	Med Priority	Continuous	Medium Pulse	5 PC Pins
SBT12*MCSPPC	12 Vdc	See Note	Med Priority	Continuous	Slow Pulse	5 PC Pins

Note: ***** = **G** (General), **C** (Cardiac), **D** (Drug or Fluid Delivery), **E** (Equipment/Supply Failure), **P** (Artificial Perfusion), **T** (Temp-Energy), **V** (Ventilation), or **X** (Oxygen)

23mm Speaker (With Circuitry)

Part Number Prefix	Typical Sound Level @ 10 cm (dBa)	Operating Voltage (Vdc)	Ave Current (mA)	Max Instant Current (mA)	Size Dia x Hgt (mm)
MSS5	85 to 95	4.5 to 5.5	150	400	23 x 13.5

Note: For continuous P/N MSS5M0, Average Current = 200 mA and Max Instant Current = 250 mA

Part Number	Melody Type	1st Tone Medical	2nd Tone Medical	3rd Tone Medical	Mounting Type
Single Continuous Medical Tone					
MSS5M0	See Note	Continuous	N/A	N/A	2 PC Pins

Note: Continuous tone models meet the freq. and rise & fall times listed in IEC 60601-1-8 Table 4,
but the user must control the on & off times to meet the other requirements of Tables 3 & 4

Part Number	Melody Type	1st Tone Medical	2nd Tone Medical	3rd Tone Medical	Mounting Type
Single Low Priority Medical Tone					
MSS5GL	Use for Any Melody	Low Priority	N/A	N/A	2 PC Pins

Single Medium Priority Medical Tone					
MSS5*M	See Note	Med Priority	N/A	N/A	2 PC Pins

Single High Priority Medical Tone					
MSS5*H	See Note	High Priority	N/A	N/A	2 PC Pins

Three Priority Medical Tones- 4 PC Pin Design (Old Design)					
MSS5MM*	See Note	Low Priority	Med Priority	High Priority	4 PC Pins

Three Priority Medical Tones- 5 PC Pin Design (New Design)					
MSS5*	See Note	Low Priority	Med Priority	High Priority	5 PC Pins

Note: ***** = **G** (General), **C** (Cardiac), **D** (Drug or Fluid Delivery), **E** (Equipment/Supply Failure),
P (Artificial Perfusion), **T** (Temp-Energy), **V** (Ventilation), or **X** (Oxygen)

Part Number	Melody Type	1st Tone Medical	2nd Tone Medical	3rd Tone 2500 Hz	Mounting Type
Two Priority Medical Tones & One Other Non-Medical Tone					
MSS5*LHCT	See Note	Low Priority	High Priority	Continuous	5 PC Pins
MSS5*LHFP	See Note	Low Priority	High Priority	Fast Pulse	5 PC Pins
MSS5*LHMP	See Note	Low Priority	High Priority	Medium Pulse	5 PC Pins
MSS5*LHSP	See Note	Low Priority	High Priority	Slow Pulse	5 PC Pins
MSS5*LMCT	See Note	Low Priority	Med Priority	Continuous	5 PC Pins
MSS5*LMFP	See Note	Low Priority	Med Priority	Fast Pulse	5 PC Pins
MSS5*LMMP	See Note	Low Priority	Med Priority	Medium Pulse	5 PC Pins
MSS5*LMSP	See Note	Low Priority	Med Priority	Slow Pulse	5 PC Pins
MSS5*MHCT	See Note	Med Priority	High Priority	Continuous	5 PC Pins
MSS5*MHFP	See Note	Med Priority	High Priority	Fast Pulse	5 PC Pins
MSS5*MHMP	See Note	Med Priority	High Priority	Medium Pulse	5 PC Pins
MSS5*MHSP	See Note	Med Priority	High Priority	Slow Pulse	5 PC Pins

Note: ***** = **G** (General), **C** (Cardiac), **D** (Drug or Fluid Delivery), **E** (Equipment/Supply Failure),
P (Artificial Perfusion), **T** (Temp-Energy), **V** (Ventilation), or **X** (Oxygen)

23mm Speaker (With Circuitry)

Part Number	Melody Type	1st Tone Medical	2nd Tone 2500 Hz	3rd Tone 2500 Hz	Mounting Type
One Priority Medical Tone & Two Other Non-Medical Tones					
MSS5GLCFP	Use for Any Melody	Low Priority	Continuous	Fast Pulse	5 PC Pins
MSS5GLCMP	Use for Any Melody	Low Priority	Continuous	Medium Pulse	5 PC Pins
MSSGLCSP	Use for Any Melody	Low Priority	Continuous	Slow Pulse	5 PC Pins
MSS5*HCFP	See Note	High Priority	Continuous	Fast Pulse	5 PC Pins
MSS5*HCMP	See Note	High Priority	Continuous	Medium Pulse	5 PC Pins
MSS5*HCSP	See Note	High Priority	Continuous	Slow Pulse	5 PC Pins
MSS5*MCFP	See Note	Medium Priority	Continuous	Fast Pulse	5 PC Pins
MSS5*MCMP	See Note	Medium Priority	Continuous	Medium Pulse	5 PC Pins
MSS5*MCSP	See Note	Medium Priority	Continuous	Slow Pulse	5 PC Pins

Note: ***** = **G** (General), **C** (Cardiac), **D** (Drug or Fluid Delivery), **E** (Equipment/Supply Failure),
P (Artificial Perfusion), **T** (Temp-Energy), **V** (Ventilation), or **X** (Oxygen)

45mm Speaker (With Circuitry)

Part Number Prefix	Typical Sound Level @ 10 cm (dBa)	Operating Voltage (Vdc)	Ave Current (mA)	Max Instant Current (mA)	Size Dia x Hgt (mm)
SBS12	95 to 105	9 to 12	200	630	45.5 x 14.25

Note: For continuous P/N's SBS12M0PC & SBS12M0FL, Ave Current = 300 mA and Max Instant Current = 400 mA

Part Number Suffix	Termination Type	Part Size Dia x Hgt (mm)
PC	PC Pins (2 to 5 pins)	44.5 x 14.25
FL	Flange with 2 wires	64.5 x 14.25

Part Number	Melody Type	1st Tone Medical	2nd Tone Medical	3rd Tone Medical	Mounting Type
Single Continuous Medical Tone					
SBS12M0PC	See Note	Continuous	N/A	N/A	2 PC Pins
SBS12M0FL	See Note	Continuous	N/A	N/A	Flange

Note: Continuous tone models meet the freq. and rise & fall times listed in IEC 60601-1-8 Table 4, but the user must control the on & off times to meet the other requirements of Tables 3 & 4

Part Number	Melody Type	1st Tone Medical	2nd Tone Medical	3rd Tone Medical	Mounting Type
Single Low Priority Medical Tone					
SBS12GLPC	Use for Any Melody	Low Priority	N/A	N/A	2 PC Pins
SBS12GLFL	Use for Any Melody	Low Priority	N/A	N/A	Flange
Single Medium Priority Medical Tone					
SBS12*MPC	See Note	Med Priority	N/A	N/A	2 PC Pins
SBS12*MFL	See Note	Med Priority	N/A	N/A	Flange
Single High Priority Medical Tone					
SBS12*HPC	See Note	High Priority	N/A	N/A	2 PC Pins
SBS12*HFL	See Note	High Priority	N/A	N/A	Flange

Note: * = G (General), C (Cardiac), D (Drug or Fluid Delivery), E (Equipment/Supply Failure), P (Artificial Perfusion), T (Temp-Energy), V (Ventilation), or X (Oxygen)

Part Number	Melody Type	1st Tone Medical	2nd Tone Medical	3rd Tone Medical	Mounting Type
Three Priority Medical Tones					
SBS12M1PC	General	Low Priority	Med Priority	High Priority	5 PC Pins
SBS12LMMCPC	Cardiac	Low Priority	Med Priority	High Priority	5 PC Pins
SBS12LMMDPC	Drug or Fluid Delivery	Low Priority	Med Priority	High Priority	5 PC Pins
SBS12LMMEPC	Equipment Supply Failure	Low Priority	Med Priority	High Priority	5 PC Pins
SBS12LMMPPC	Artificial Perfusion	Low Priority	Med Priority	High Priority	5 PC Pins
SBS12LMMTPC	Temp-Energy Delivery	Low Priority	Med Priority	High Priority	5 PC Pins
SBS12LMMVPC	Ventilation	Low Priority	Med Priority	High Priority	5 PC Pins
SBS12LMMXPC	Oxygen	Low Priority	Med Priority	High Priority	5 PC Pins

45mm Speaker (With Circuitry)

Part Number	Melody Type	1st Tone Medical	2nd Tone Medical	3rd Tone 2500 Hz	Mounting Type
Two Priority Medical Tones & One Other Non-Medical Tone					
SBS12*LHCTPC	See Note	Low Priority	High Priority	Continuous	5 PC Pins
SBS12*LHFPPC	See Note	Low Priority	High Priority	Fast Pulse	5 PC Pins
SBS12*LHMPPC	See Note	Low Priority	High Priority	Medium Pulse	5 PC Pins
SBS12*LHSPPC	See Note	Low Priority	High Priority	Slow Pulse	5 PC Pins
SBS12*LMCTPC	See Note	Low Priority	Med Priority	Continuous	5 PC Pins
SBS12*LMFPPC	See Note	Low Priority	Med Priority	Fast Pulse	5 PC Pins
SBS12*LMMPPC	See Note	Low Priority	Med Priority	Medium Pulse	5 PC Pins
SBS12*LMSPPC	See Note	Low Priority	Med Priority	Slow Pulse	5 PC Pins
SBS12*MHCTPC	See Note	Med Priority	High Priority	Continuous	5 PC Pins
SBS12*MHFPPC	See Note	Med Priority	High Priority	Fast Pulse	5 PC Pins
SBS12*MHMPPC	See Note	Med Priority	High Priority	Medium Pulse	5 PC Pins
SBS12*MHSPPC	See Note	Med Priority	High Priority	Slow Pulse	5 PC Pins

Note: ***** = **G** (General), **C** (Cardiac), **D** (Drug or Fluid Delivery), **E** (Equipment/Supply Failure), **P** (Artificial Perfusion), **T** (Temp-Energy), **V** (Ventilation), or **X** (Oxygen)

Part Number	Melody Type	1st Tone Medical	2nd Tone 2500 Hz	3rd Tone 2500 Hz	Mounting Type
One Priority Medical Tone & Two Other Non-Medical Tones					
SBS12GLCFPPC	Use for Any Melody	Low Priority	Continuous	Fast Pulse	5 PC Pins
SBS12GLCMPPC	Use for Any Melody	Low Priority	Continuous	Medium Pulse	5 PC Pins
SBS12GLCSPPC	Use for Any Melody	Low Priority	Continuous	Slow Pulse	5 PC Pins
SBS12*HCFPPC	See Note	High Priority	Continuous	Fast Pulse	5 PC Pins
SBS12*HCMPPC	See Note	High Priority	Continuous	Medium Pulse	5 PC Pins
SBS12*HCSPPC	See Note	High Priority	Continuous	Slow Pulse	5 PC Pins
SBS12*MCFPPC	See Note	Medium Priority	Continuous	Fast Pulse	5 PC Pins
SBS12*MCMPPC	See Note	Medium Priority	Continuous	Medium Pulse	5 PC Pins
SBS12*MCSPPC	See Note	Medium Priority	Continuous	Slow Pulse	5 PC Pins

Note: ***** = **G** (General), **C** (Cardiac), **D** (Drug or Fluid Delivery), **E** (Equipment/Supply Failure), **P** (Artificial Perfusion), **T** (Temp-Energy), **V** (Ventilation), or **X** (Oxygen)