



DWS05MFC ESD Protection Diode

Feature

- Uni-directional ESD protection of five lines
- 90Watts peak pulse power ($t_p = 8/20\mu s$)
- Working voltage: 5V
- Junction Capacitance: 54pF(Typ)
- Low clamping voltage
- Low leakage current
- IEC 61000-4-2 30kV contact 30kV air
- IEC61000-4-4(EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 7.5A (8/20 μs)

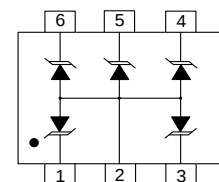
Application

- Hand-Held Portable applications
- Serial and Parallel Ports
- Networking and Telecom
- Notebooks, Desktops, Servers

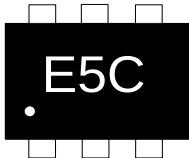
Mechanical Data

- Package: SOT-563
- Molding compound flammability rating: UL 94V-0
- RoHS/WEEE compliant

Circuit Diagram/PIN Configuration



Ordering Information

Part Number	Package	Marking	Packing	Reel Size
DWS05MFC	SOT-563		3000 Tape & Reel	7 inches



Absolute Maximum Rating ($T_A=25^{\circ}\text{C}$ unless otherwise Specified)

Parameter	Symbol	Value	Units
Maximum Peak Pulse Current ($t_p=8/20\mu\text{s}$)	I_{pp}	7.5	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V_{ESD}	± 30 ± 30	kV
Lead Soldering Temperature	T_L	260(10sec.)	$^{\circ}\text{C}$
Junction Temperature	T_J	-55 to + 125	$^{\circ}\text{C}$
Storage Temperature	T_{stg}	-55 to + 150	$^{\circ}\text{C}$

Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise Specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-Off Voltage	V_{RWM}				5	V
Reverse Leakage Current	I_R	$V_{RWM}=5\text{V}$			0.5	μA
Reverse Breakdown Voltage	V_{BR}	$I_T=1\text{mA}$	6		9	V
Forward Voltage	V_F	$I_T=10\text{mA}$	0.6		1.2	V
Clamping Voltage	V_C	$I_{PP}=7.5\text{A}, t_p=8/20\mu\text{s}$			12	V
Junction Capacitance	C_j	$V_R = 0\text{V}, f = 1\text{MHz}$		54	70	pF

Electrical Parameters

V_{RWM} Reverse Working Voltage Max.

I_R Maximum Reverse Leakage Current @ V_{RWM}

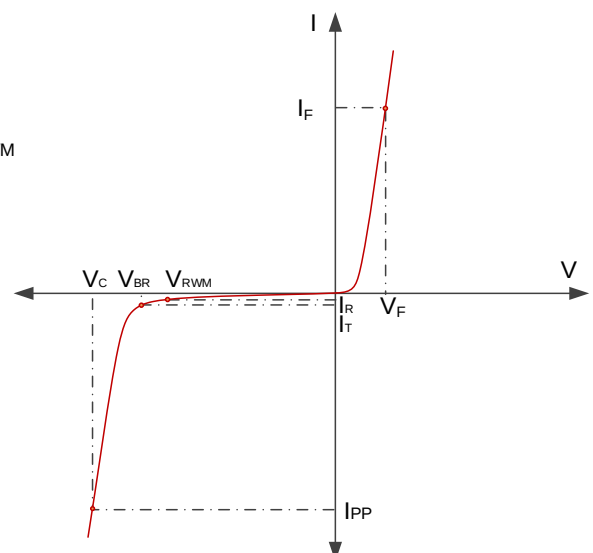
I_T Test Current

V_F Forward Voltage

V_{BR} Reverse Breakdown Voltage

I_{PP} Maximum Reverse Peak Pulse Current

V_C Clamping Voltage @ I_{PP}





Typical Characteristics

Figure1: 8/20 μ s pulse waveform according to IEC61000-4-5

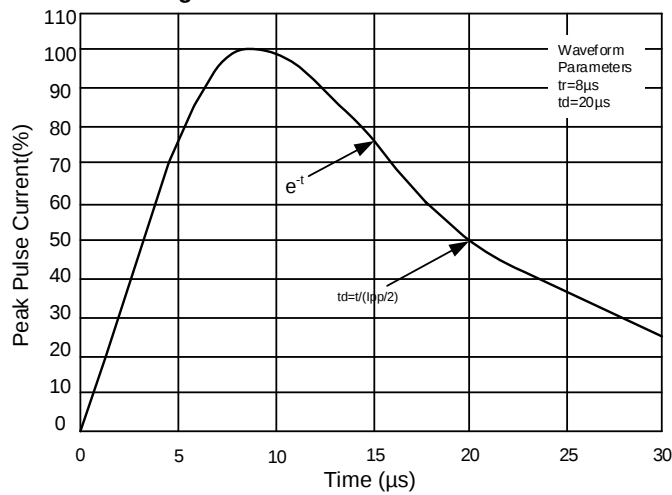


Figure2: ESD pulse waveform according to IEC 61000-4-2

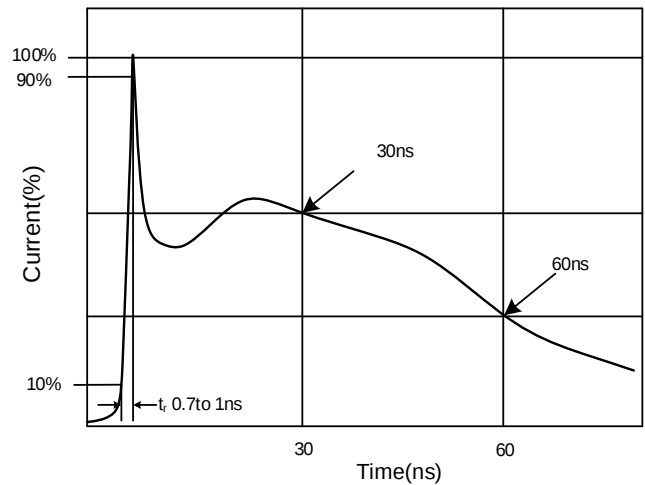


Figure3: Power Derating Curve

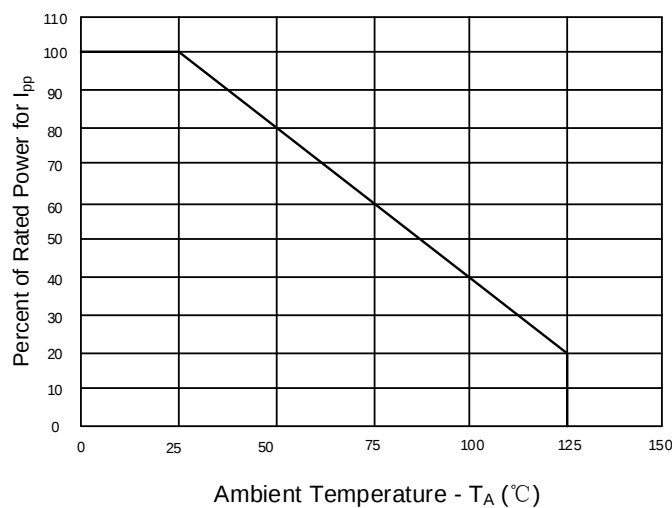


Figure 4: Clamping Voltage vs. I_{pp}

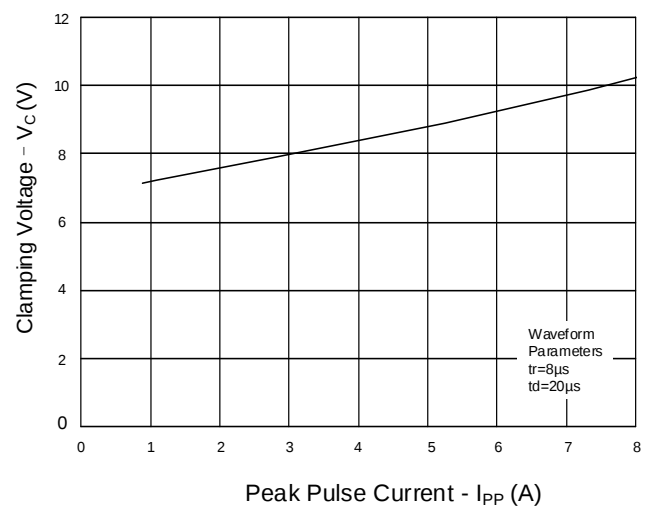


Figure 5: Peak Pulse Power vs. Pulse Time

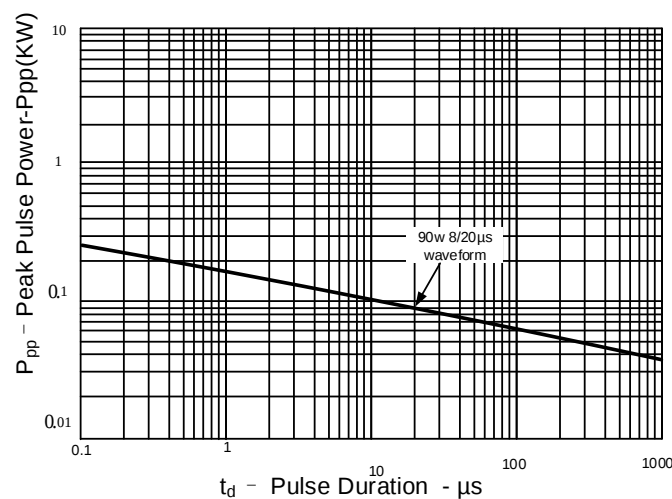
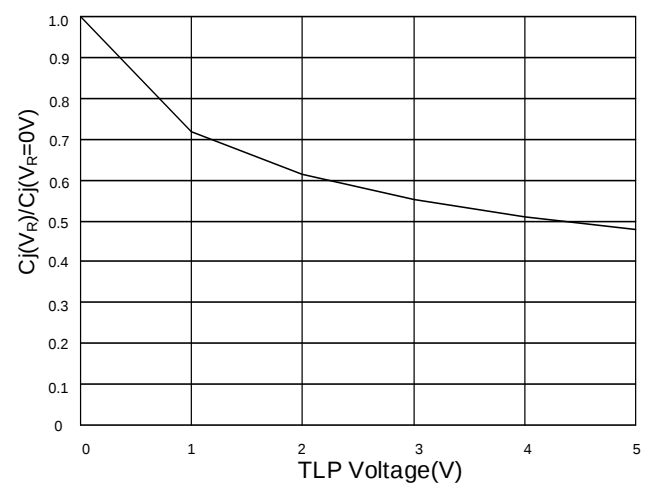


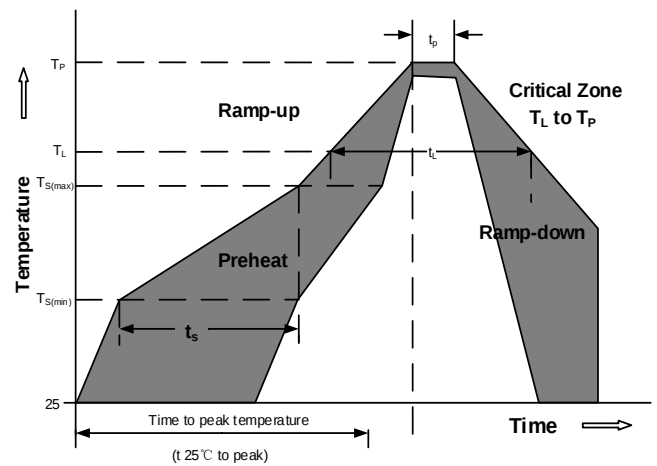
Figure6: Junction Capacitance vs.Reverse Voltage



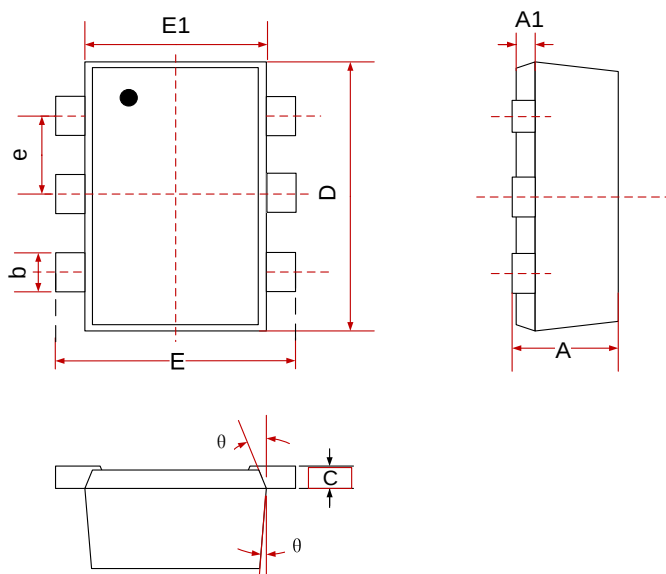


Soldering Parameters

Reflow Condition		Pb-Free Assembly
Pre Heat	Temperature Min ($T_{S(min)}$)	150°C
	Temperature Max ($T_{S(max)}$)	200°C
	Time (min to max) (t_s)	60-190 secs
Average ramp up rate (Liquids Temp) (T_L) to peak		5°C/second max
$T_{S(max)}$ to T_L — Ramp-up Rate		5°C/second max
Reflow	Temperature (T_L) (Liquids)	217°C
	Temperature (t_L)	60-150 seconds
Peak Temperature (T_P)		260+0/-5°C
Time within actual peak Temperature(t_p)		20-40 seconds
Ramp-down Rate		5°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes max
Do not exceed		280°C

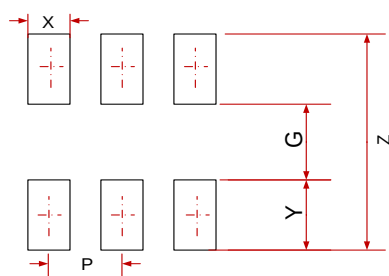


SOT-563 Outline Drawing



COMMON DIMENSION				
SYMBOL	MILLIMETER		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	0.525	0.600	0.021	0.024
A1	0.000	0.050	0.000	0.002
e	0.450	0.550	0.014	0.022
c	0.090	0.160	0.004	0.006
D	1.500	1.700	0.059	0.067
b	0.170	0.270	0.007	0.011
E1	1.100	1.300	0.043	0.051
E	1.500	1.700	0.059	0.067
L	0.100	0.300	0.004	0.012
θ	7°REF		7°REF	

Land Pattern *



COMMON DIMENSION		
DIM	INCHES	MILLIMETERS
Z	0.0752	1.91
G	0.0350	0.89
P	0.020TYP	0.51TYP
X	0.0118	0.3
Y	0.0201	0.51

* This land pattern is for reference purposes only