



DWS05MF ESD Protection Diode

Feature

- Uni-directional ESD protection of four lines
- 120Watts peak pulse power ($t_p=8/20\mu s$)
- Working voltage: 5V
- Junction Capacitance: 60pF(Typ)
- Low clamping voltage
- Low leakage current
- IEC 61000-4-2 $\pm 30kV$ contact $\pm 30kV$ air
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 8A (8/20 μs)

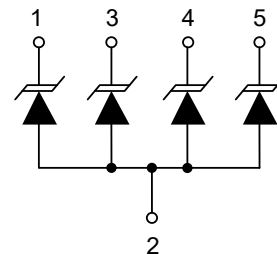
Application

- Handsets and Accessories
- Personal Digital Assistants(PDA's)
- Portable Instrumentation
- Notebooks, Desktops and Servers
- Digital Cameras
- Peripherals

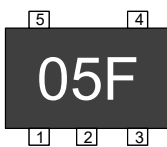
Mechanical Data

- Package: SOT-353
- Molding compound flammability rating: UL 94V-0
- RoHS/WEEE compliant

Schematic & PIN Configuration



Ordering Information

Part Number	Package	Marking	QTY per Reel	Reel Size
DWS05MF	SOT-353		3000 pcs	7 inches



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

Parameter	Symbol	Value	Units
Peak Pulse Power ($t_p=8/20\mu\text{s}$)	P_{PP}	120	Watts
Peak Pulse Current ($t_p=8/20\mu\text{s}$) (note1)	I_{pp}	8	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 (10seconds)	$^{\circ}\text{C}$
Junction Temperature	T_J	-55 to + 125	$^{\circ}\text{C}$
Storage Temperature	T_{stg}	-55 to + 125	$^{\circ}\text{C}$

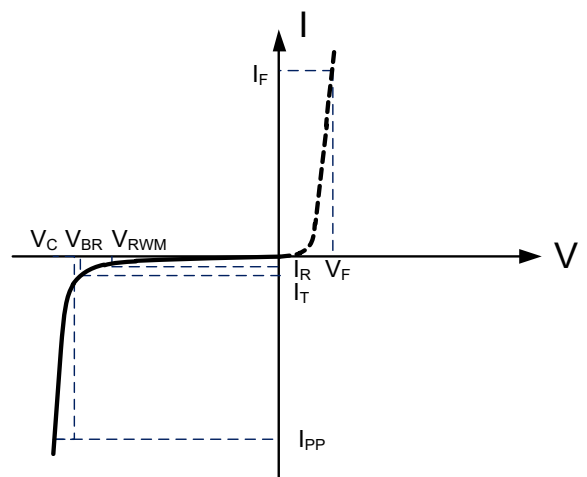
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Voltage	V_{RWM}				5	V
Reverse Breakdown Voltage	V_{BR}	$I_T=1\text{mA}$	6			V
Reverse Leakage Current	I_R	$V_{RWM}=5\text{V}$, $T=25^{\circ}\text{C}$			0.5	μA
Clamping Voltage	V_C	$I_{PP}=8\text{A}$, $t_p=8/20\mu\text{s}$		11	15	V
ESD Clamping Voltage ⁽¹⁾	V_C	$I_{TLP}=4\text{A}$, $t_p=0.2/100\text{ns}$		8		V
ESD Clamping Voltage ⁽¹⁾	V_C	$I_{TLP}=16\text{A}$, $t_p=0.2/100\text{ns}$		10.5		V
ESD Dynamic Resistance ⁽²⁾	R_{DYN}	$TLP=0.2/100\text{ns}$		0.2		Ω
Junction Capacitance	C_j	$V_R=0\text{V}$, $f=1\text{MHz}$ Between I/O pins and GND		60	75	pF

Electrical Parameters

Symbol	Parameter
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Working Peak Reverse Voltage
I_R	Maximum Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current

Note: 8/20 μs pulse waveform.





Typical Characteristics

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

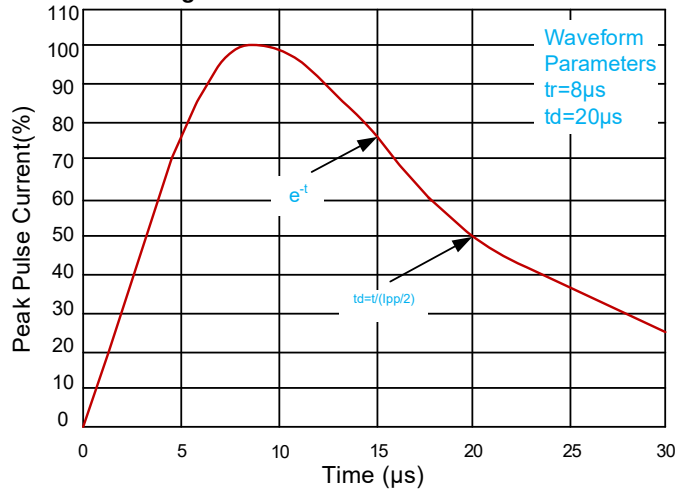


Figure2: ESD pulse waveform according to IEC 61000-4-2

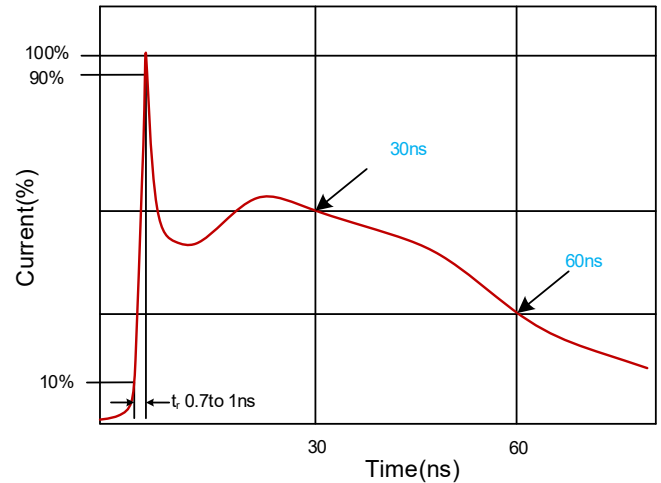


Figure 3: Peak Pulse Power vs. Pulse Time

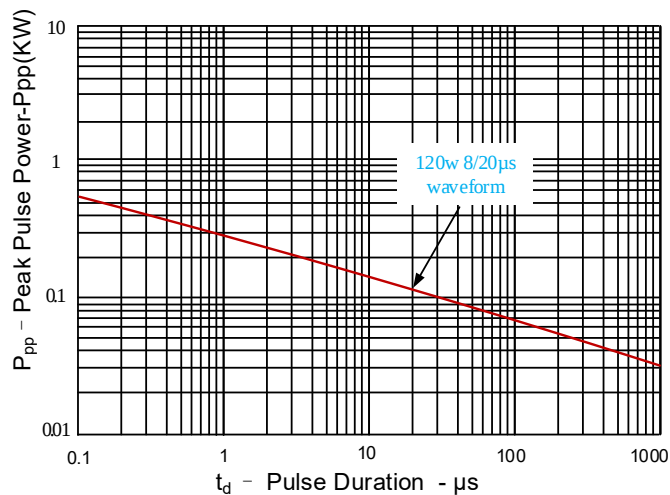


Figure4: Power Derating Curve

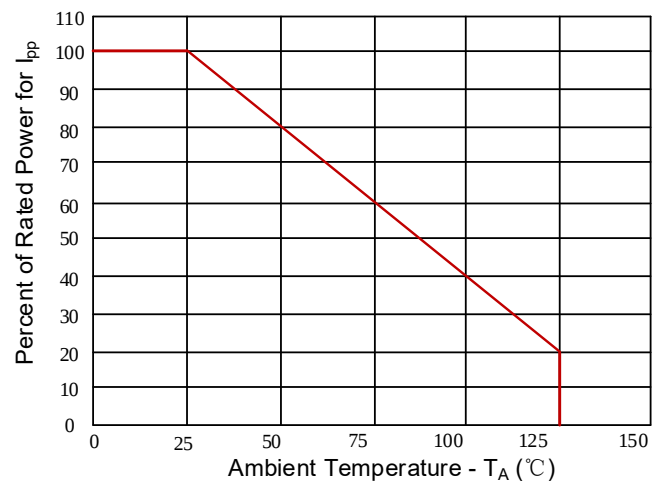


Figure 5: Clamping Voltage vs. Ipp

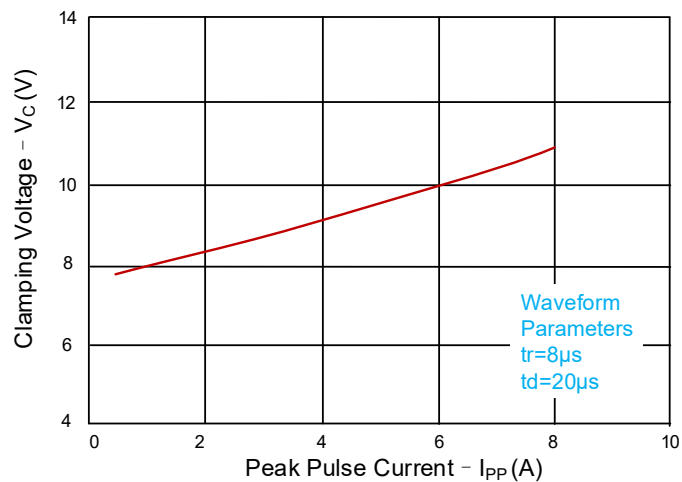
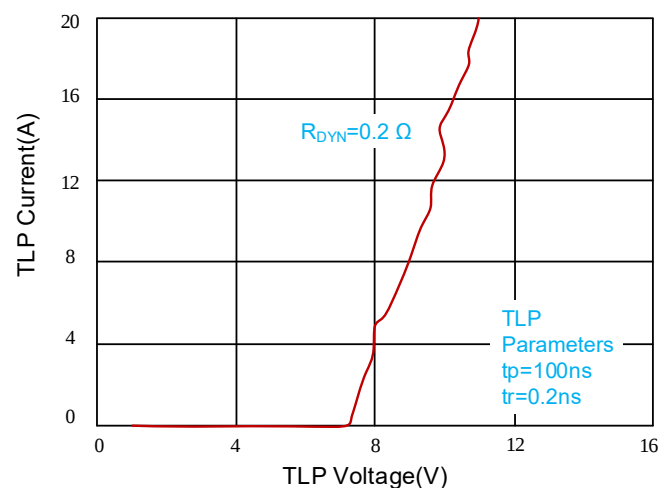
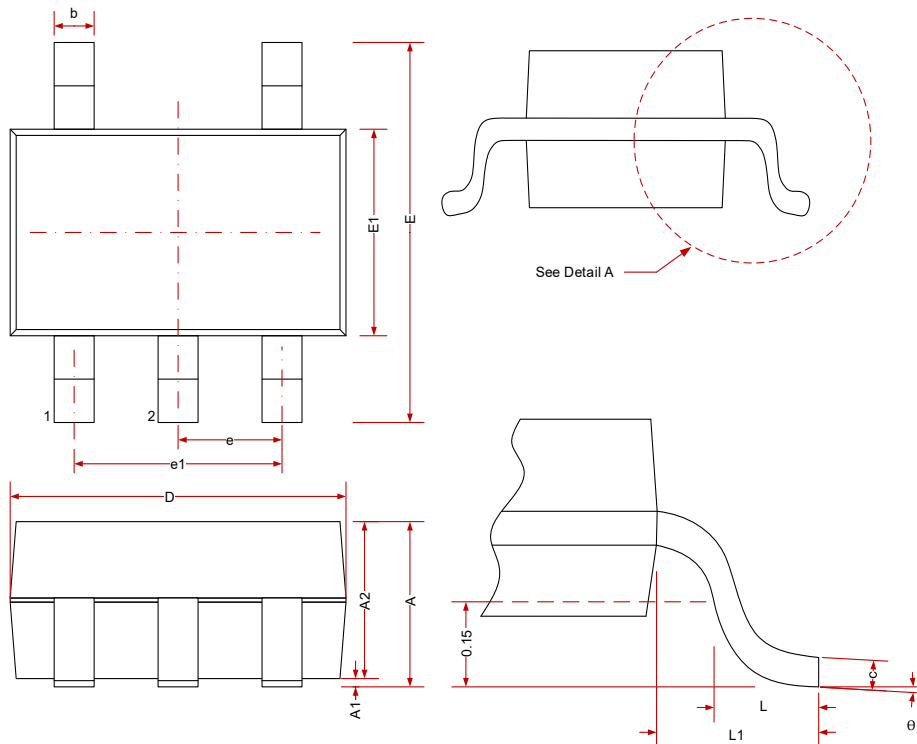


Figure6: TLP Positive I-V Curve





SOT-353 Outline Drawing



PKG	SOT-353			
	INCHES		MILLIMETERS	
	MIN.	MAX.	MIN.	MAX.
A	0.035	0.043	0.900	1.100
A1	0.000	0.004	0.000	0.100
A2	0.035	0.039	0.900	1.000
c	0.004	0.006	0.100	0.150
b	0.006	0.014	0.150	0.350
D	0.079	0.087	2.000	2.200
E1	0.045	0.053	1.150	1.350
E	0.085	0.096	2.150	2.450
e	0.026TYP		0.650TYP	
e1	0.047	0.055	1.200	1.400
L	0.021REF		0.525REF	
L1	0.010	0.018	0.260	0.460
θ	0°	8°	0°	8°