

Features

- Uni-Directional ESD Protection of One Line
- High Peak Pulse Current Capability
- Halogen Free. "Green" Device (Note 1)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings

- Operating Junction Temperature Range: -55°C to +125°C
- Storage Temperature Range: -55°C to +150°C

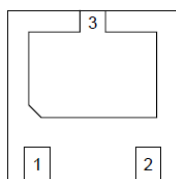
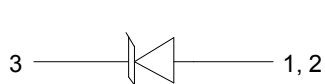
MCC Part Number	Device Marking
ESD1051P4	5101 V10
ESD1251P4	5101 V12
ESD1551P4	5101 V15
ESD1851P4	5101 V18
ESD2451P4	5101 V24

IEC61000-4-2 (ESD)	Air Contact	±30KV ±30KV
IEC61000-4-4 (EFT) (5/50ns)		80A
Peak Pulse Power (8/20µs)	P _{PK}	4500W

Note :

1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

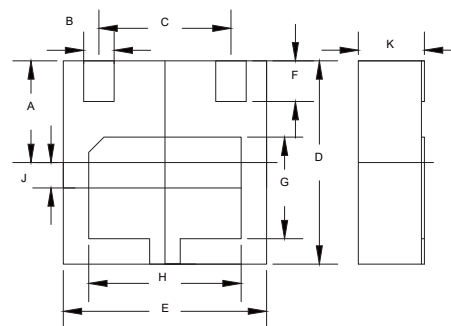
Internal Structure



Transparent top view

ESD Protection Device

DFN2020-3L



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.037	0.041	0.950	1.050	
B	0.010	0.014	0.250	0.350	
C	0.051		1.30		TYP.
D	0.075	0.083	1.900	2.100	
E	0.075	0.083	1.900	2.100	
F	0.014	0.018	0.350	0.450	
G	0.035	0.043	0.900	1.100	
H	0.055	0.063	1.400	1.600	
J	0.008	0.012	0.200	0.300	
K	-	0.026	-	0.650	

Electrical Characteristics @ 25°C (Unless Otherwise Specified)

ESD1051P4

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Working Voltage	V_{RWM}				10	V
Reverse Breakdown Voltage	V_{BR}	$I_T=1mA$	10.5	11	12.5	V
Reverse Leakage Current	I_R	$V_{RWM}=10V$			1	μA
Forward Voltage	V_F	$I_F=20mA$			1.25	V
Peak Pulse Current	I_{pp}	$t_p=8/20\mu s$			205	A
Clamping Voltage	V_C	$I_{pp}=205A, t_p=8/20\mu s$		19	21	V
Junction Capacitance	C_J	$V_R=0V, f=1MHz$		2150	2600	pF

ESD1251P4

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Working Voltage	V_{RWM}				12	V
Reverse Breakdown Voltage	V_{BR}	$I_T=1mA$	12.5		15	V
Reverse Leakage Current	I_R	$V_{RWM}=12V$			0.1	μA
Forward Voltage	V_F	$I_F=20mA$			1.25	V
Peak Pulse Current	I_{pp}	$t_p=8/20\mu s$			200	A
Clamping Voltage	V_C	$I_{pp}=200A, t_p=8/20\mu s$		22	24	V
Junction Capacitance	C_J	$V_R=0V, f=1MHz$		1650	2000	pF

ESD1551P4

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Working Voltage	V_{RWM}				15	V
Reverse Breakdown Voltage	V_{BR}	$I_T=1mA$	15.5		18	V
Reverse Leakage Current	I_R	$V_{RWM}=15V$			0.1	μA
Forward Voltage	V_F	$I_F=20mA$			1.25	V
Peak Pulse Current	I_{pp}	$t_p=8/20\mu s$			160	A
Clamping Voltage	V_C	$I_{pp}=160A, t_p=8/20\mu s$		26	28	V
Junction Capacitance	C_J	$V_R=0V, f=1MHz$		1250	1500	pF

Electrical Characteristics @ 25°C (Unless Otherwise Specified)
ESD1851P4

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Working Voltage	V_{RWM}				18	V
Reverse Breakdown Voltage	V_{BR}	$I_T=1mA$	18.5		21	V
Reverse Leakage Current	I_R	$V_{RWM}=15V$			0.1	μA
Forward Voltage	V_F	$I_F=20mA$			1.25	V
Peak Pulse Current	I_{pp}	$t_p=8/20\mu s$			150	A
Clamping Voltage	V_C	$I_{PP}=150A, t_p=8/20\mu s$		31	33	V
Junction Capacitance	C_J	$V_R=0V, f=1MHz$		1000	1200	pF

ESD2451P4

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Working Voltage	V_{RWM}				24	V
Reverse Breakdown Voltage	V_{BR}	$I_T=1mA$	24.5		28	V
Reverse Leakage Current	I_R	$V_{RWM}=24V$			0.1	μA
Forward Voltage	V_F	$I_F=20mA$			1.25	V
Peak Pulse Current	I_{pp}	$t_p=8/20\mu s$			120	A
Clamping Voltage	V_C	$I_{PP}=120A, t_p=8/20\mu s$		36	38	V
Junction Capacitance	C_J	$V_R=0V, f=1MHz$		800	1000	pF

Curve Characteristics

Fig. 1 - 8 X 20 μ s Pulse Waveform

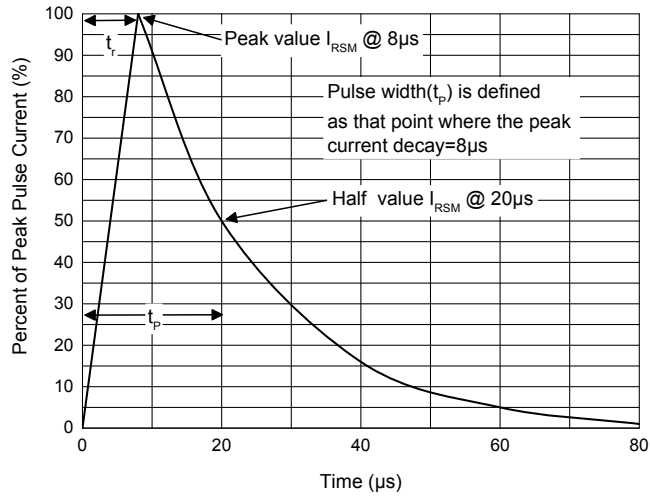


Fig. 2 - Peak Pulse Power Rating Curve

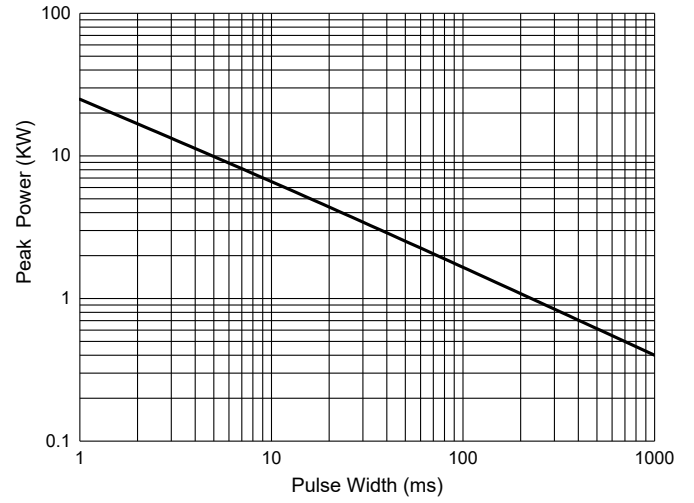
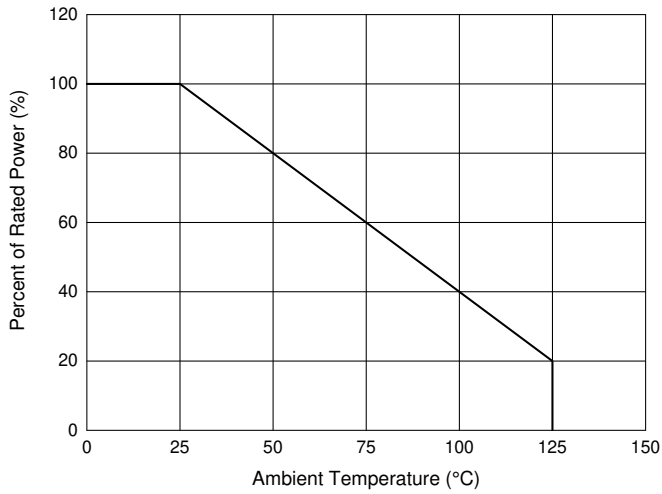


Fig. 3 - Pulse Derating Curve



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 3Kpcs/Reel

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