Features

- Uni-Directional ESD Protection of Two Line
- Low leakage current
- Low Clamping Voltage
- Moisture Sensitivity Level1
- 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)

ESD Protection Device

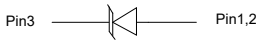
Maximum Ratings

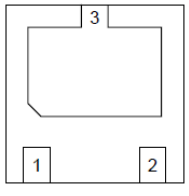
IEC61000-4-2 (ESD)	Air	±30KV
	Contact	±30KV
Peak Pulse Power (8/20μs)(Note2)	P_{PK}	5000W
Operating Junction Temperature Range	T_J	-55°C to +125°C
Storage Temperature Range	T_{STG}	-55°C to +150°C

Note :

1. Halogen free "Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. Non-repetitive current pulse 8/20 μs exponential decay waveform according to IEC61000-4-5.

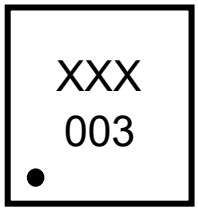
Internal Structure





Transparent top view

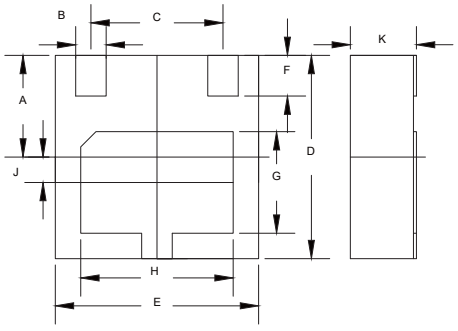
Marking Code



XXX:Device code

MCC Part No.	Device Code
ESDHC12VP4	T12
ESDHC15VP4	T15
ESDHC18VP4	T18
ESDHC24VP4	T24

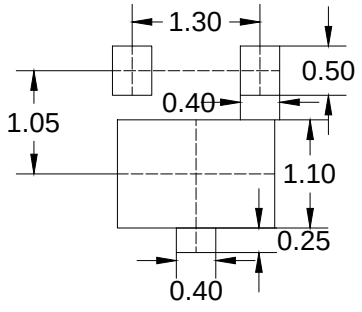
DFN2020-3L



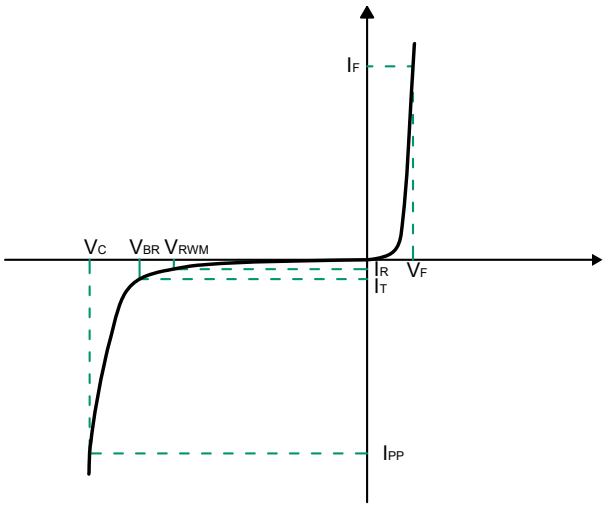
DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.037	0.041	0.950	1.050	
B	0.010	0.014	0.250	0.350	
C	0.051		1.30		TYP.
D	0.075	0.083	1.900	2.100	
E	0.075	0.083	1.900	2.100	
F	0.014	0.018	0.350	0.450	
G	0.035	0.043	0.900	1.100	
H	0.055	0.063	1.400	1.600	
J	0.008	0.012	0.200	0.300	
K	-	0.026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

SUGGESTED SOLDER PAD LAYOUT

Unit:mm



Symbol	Parameter
V_{RWM}	Peak Reverse Working Voltage
I_R	Reverse Leakage Current @ VRWM
V_{BR}	Breakdown Voltage @ IT
IT	Test Current
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ IPP
P_{PK}	Peak Pulse Power
C_J	Junction Capacitance
I_F	Forward Current
V_F	Forward Voltage @ IF



Electrical Characteristics @ 25°C (Unless Otherwise Specified)

ESDHC12VP4

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Working Voltage	V_{RWM}				12	V
Reverse Breakdown Voltage	V_{BR}	I_T=1mA	12.8		15	V
Reverse Leakage Current	I_R	V_{RWM}=12V			0.5	μA
Clamping Voltage[Note1]	V_C	I_{PP}=50A, t_P=8/20μs		16	20	V
Clamping Voltage[Note1]	V_C	I_{PP}=100A, t_P=8/20μs		18	22	V
Clamping Voltage[Note1]	V_C	I_{PP}=200A, t_P=8/20μs		20	24	V
Junction Capacitance	C_J	V_R=0V, f=1MHz		1080		pF
Dynamic Resistance [Note2]	R_{DYN}	TLP, t_P=100ns		0.09		Ω

ESDHC15VP4

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Working Voltage	V_{RWM}				15	V
Reverse Breakdown Voltage	V_{BR}	I_T=1mA	16		19	V
Reverse Leakage Current	I_R	V_{RWM}=15V			0.5	μA
Clamping Voltage[Note1]	V_C	I_{PP}=50A, t_P=8/20μs		20	24	V
Clamping Voltage[Note1]	V_C	I_{PP}=100A, t_P=8/20μs		24	27	V
Clamping Voltage[Note1]	V_C	I_{PP}=170A, t_P=8/20μs		30	35	V
Junction Capacitance	C_J	V_R=0V, f=1MHz		1050		pF
Dynamic Resistance [Note2]	R_{DYN}	TLP, t_P=100ns		0.035		Ω

ESDHC18VP4

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Working Voltage	V_{RWM}				18	V
Reverse Breakdown Voltage	V_{BR}	I_T=1mA	19		22	V
Reverse Leakage Current	I_R	V_{RWM}=18V			0.5	μA
Clamping Voltage Note1	V_C	I_{PP}=50A, t_P=8/20μs		23	27	V
Clamping Voltage Note1	V_C	I_{PP}=100A, t_P=8/20μs		28	33	V
Clamping Voltage Note1	V_C	I_{PP}=150A, t_P=8/20μs		32	38	V
Junction Capacitance	C_J	V_R=0V, f=1MHz		950		pF
Dynamic Resistance Note2	R_{DYN}	TLP, t_P=100ns		0.05		Ω

ESDHC24VP4

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Working Voltage	V_{RWM}				24	V
Reverse Breakdown Voltage	V_{BR}	I_T=1mA	25		30	V
Reverse Leakage Current	I_R	V_{RWM}=24V			0.5	μA
Clamping Voltage Note1	V_C	I_{PP}=50A, t_P=8/20μs		34	38	V
Clamping Voltage Note1	V_C	I_{PP}=100A, t_P=8/20μs		40	44	V
Clamping Voltage Note1	V_C	I_{PP}=120A, t_P=8/20μs		46	60	V
Junction Capacitance	C_J	V_R=0V, f=1MHz		800		pF
Dynamic Resistance Note2	R_{DYN}	TLP, t_P=100ns		0.05		Ω

Note :

1.Non-repetitive current pulse 8/20μs exponential decay waveform according to IEC61000-4-5.

2.TLP parameter: Z_0=50Ω, tp=100ns, tr=2ns, averaging window from 60ns to 80ns. R_{DYN} is calculated from 4A to 16A.

Curve Characteristics

Fig. 1 - 8 X 20μs Pulse Waveform

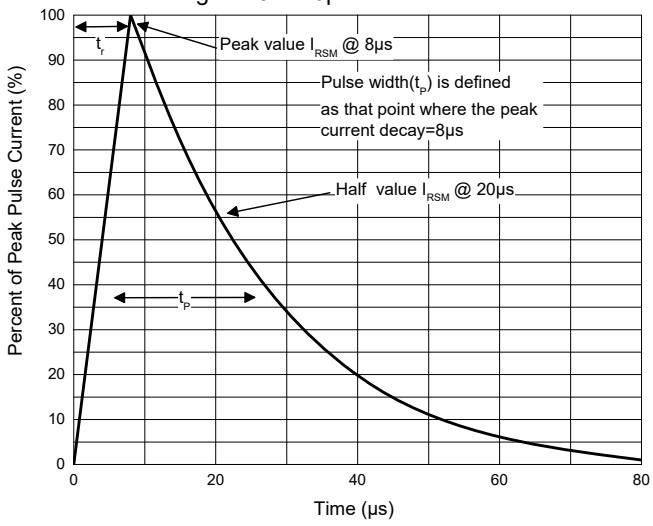


Fig. 2 - Non-Repetitive Peak Pulse Power

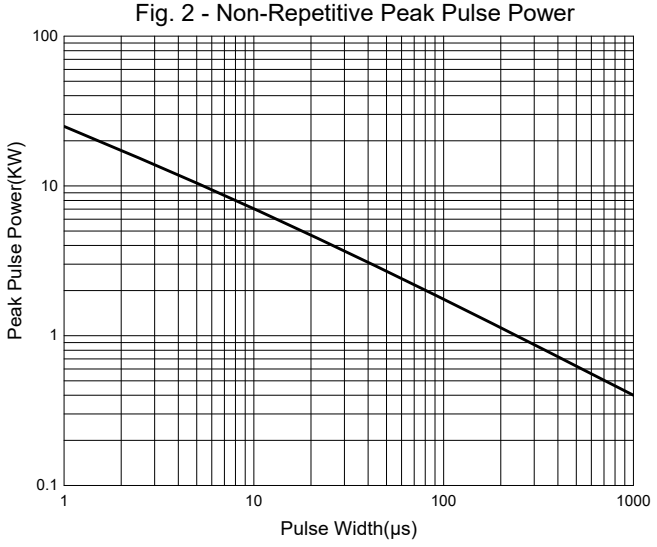


Fig. 3 - Capacitance Characteristics

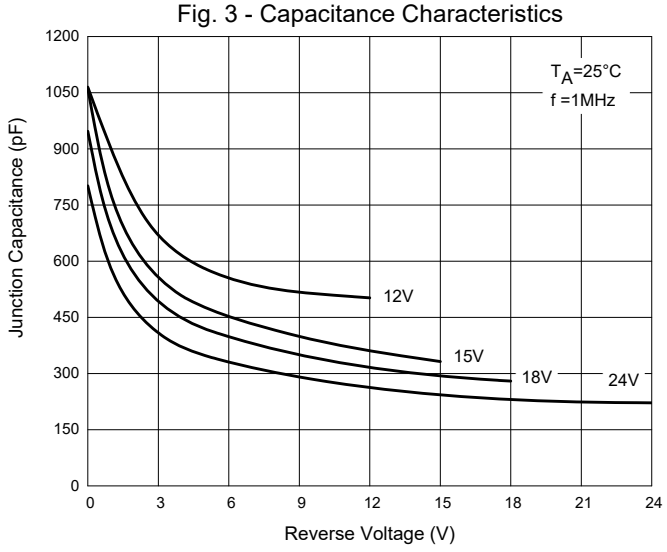


Fig. 4 - Clamping Voltage Characteristics

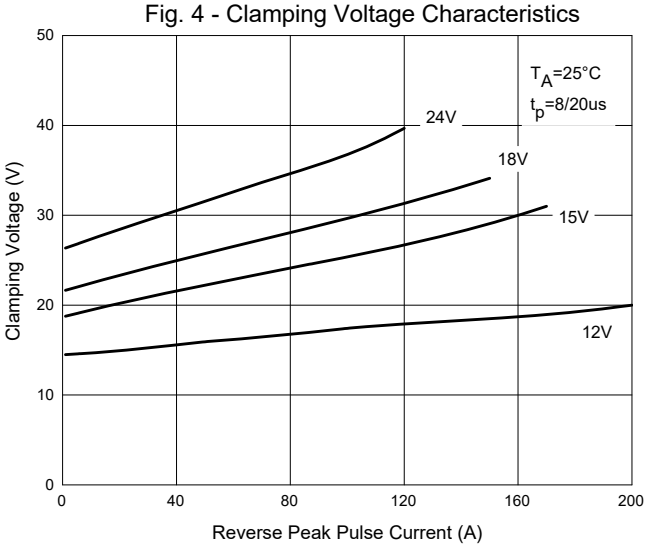


Fig. 5 - TLP Curve

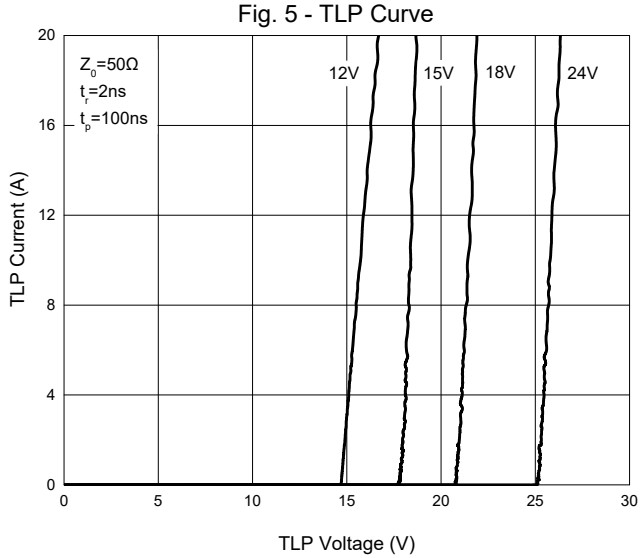
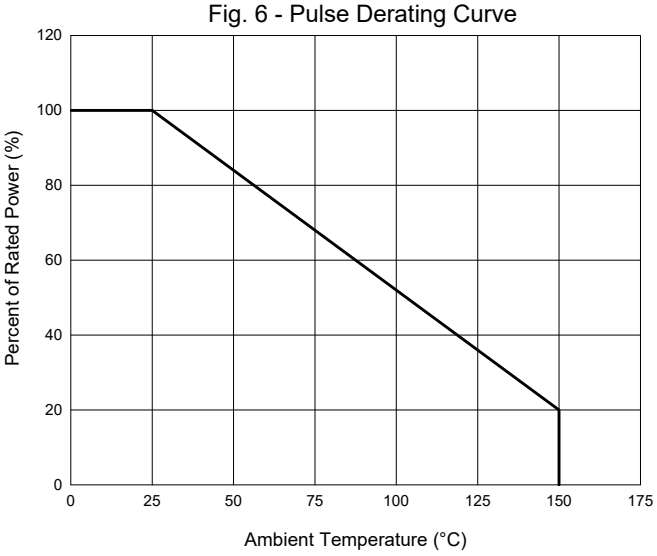


Fig. 6 - Pulse Derating Curve



Ordering Information

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

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for Micro Commercial Components (MCC) ***manufacturer:***

Other Similar products are found below :

1.5KE100A-TP 1.5KE110A-TP 1.5KE150A-TP 1.5KE150CA-TP 1.5KE15CA-TP 1.5KE200A-TP 1.5KE200CA-TP 1.5KE20A-TP 1.5KE20CA-TP 1.5KE220A-TP 1.5KE220CA-TP 1.5KE22A-TP 1.5KE22CA-TP 1.5KE24A-TP 1.5KE24CA-TP 1.5KE250A-TP 1.5KE250CA-TP 1.5KE27A-TP 1.5KE27CA-TP 1.5KE300CA-TP 1.5KE30A-TP 1.5KE30CA-TP 1.5KE33A-TP 1.5KE33CA-TP 1.5KE350CA-TP 1.5KE36A-BP 1.5KE36A-TP 1.5KE400A-TP 1.5KE400CA-TP 1.5KE43A-TP 1.5KE43CA-TP 1.5KE43CA-TP-HF 1.5KE440CA-TP 1.5KE47A-TP 1.5KE51CA-TP 1.5KE56A-TP 1.5KE56CA-TP 1.5KE6.8A-TP 1.5KE68A-TP 1.5KE68CA-TP 1.5KE8.2A-TP 1.5KE82A-TP 1.5KE82CA-TP 10A01-TP 10A02 15KP120CA-TP 15KP17A-TP 15KP200A-TP 15KP240CA-TP 15KP33CA-TP