

Poly diode 静电放电抑制器、压敏电阻 (ESD/CHIP VARISTOR)

※优点:

- ◆低限制电压
- ◆优越的静电抑制, EMC 抑制
- ◆优越的脉冲抑制, EMC 抑制
- ◆双向、无极性
- ◆耐温可达+85℃
- ◆可完全替代 Silicon TVS, Diode+EMC
- ◆Capacitor combination, 节约线路板空间及焊接成本
- ◆良好的焊接性能

※应用

- ◆电脑
- ◆USB2.0 & IEEE1394 接口
- ◆图像处理、功放的输出、输入保护
- ◆GPS
- ◆手机
- ◆CD/MD/MP3/MP4
- ◆天线
- ◆IC 及晶体管过电压保护
- ◆PDA 及蓝牙等便携产品

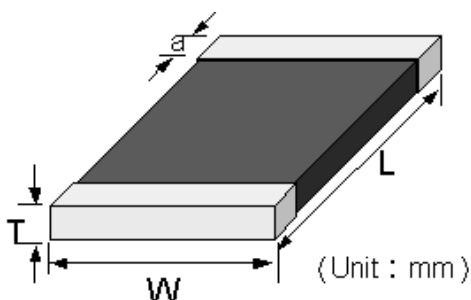
※特性

- ◆工作温度: -40 ~ +85℃
- ◆储存温度: -40 ~ +125℃
- ◆焊接时间: 260℃ 2S (IEC60068-2-58)
- ◆SOLDERING Heat Resistance: 260℃ 5S2s (IEC60068-2-58)
- ◆响应时间: <0.5nS
- ◆ESD 防护等级 (IEC61000-4-2 LEVELL4)
 接触放电: TYPICAL 8KV; 20KV MAX;
 空气放电: TYPICAL 15KV; 30KV MAX.

Polydiode, Silicon TVS diode and MLV (Multilayer Varistor) 比较表:

产品	特性	限压比	限制电流 (8/20us)	ESD 限制能力 (IEC61000-4-2)	响应时间	漏电流
Poly diode		1.30-1.60 (优)	优	>10000Pulses	<0.05nSec	<5uA
TVS diode (Zener Diode)		1.30-1.60 (优)	N/S	单向: <100Pulses 双向: <1000 Pulses	0.8nSec 到 3nSec 之间	<20uA
MLV		1.80-3.50 (中等)	良	1000 到 10000Pulses 之间	<0.1nSec	<10uA

Mechanical Dimensions:



Chip Size	L	W	Tmax.	a
0402	1.00±0.10	0.50±0.10	0.60	0.25±0.15
0603	1.60±0.15	0.80±0.15	0.90	0.35±0.15
0805	2.00±0.20	1.25±0.15	1.20	0.4±0.25
1206	3.20±0.20	1.60±0.20	1.60	0.5±0.25
1210	3.20±0.30	2.50±0.30	1.80	0.5±0.25
1812	4.50±0.35	3.20±0.30	1.80	0.5±0.25
2220	5.70±0.40	5.00±0.40	3.00	0.75±0.25

How to order

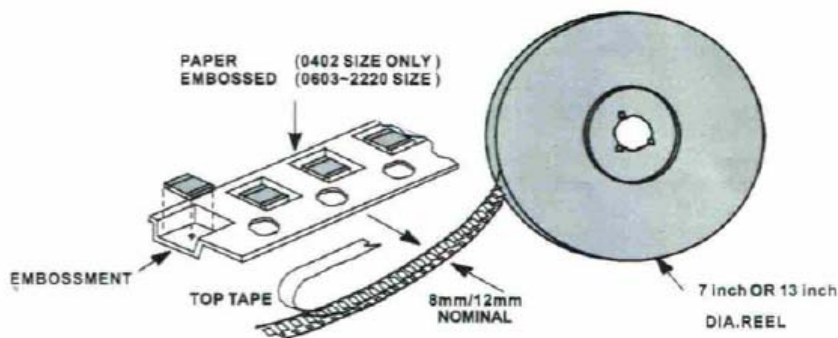
PD	02	S	3R3	DM	271	P	T
Type code PolyDiode	Chip Size 02 = EIA0402	Single Chip	Allowable Working voltage 3R3 = 3.3Vdc	Diode-mode application	Capacitance Code 271= 27×10 ¹ 201= 20×10 ¹	Termination Code P: Electroplating by Ni/Sn	Packing Code T: Tape&Reel B: Bulk

Standard Shipping Quantities:

Tape and reel is the standard packaging method of the TVS/ESD/AUTO series.

Notes :

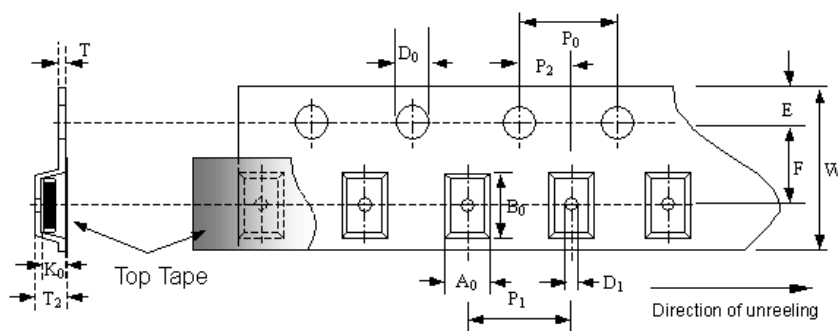
- 1 · Typical leakage current $< 1 \mu A$ · maximum leakage $< 5 \mu A$ at V_{oc} .
- 2 · Capacitance may be customized · please contact factory for availability .



Devices size	0402	0603	0805	1206	1210	1812	2220
PCS / 7 inch reel	10,000	4,000	3,000	3,000	2,000	1,000	1,000

※ Less than 100 pieces sample quantity, the units are shipped bulk pack.

Tape and Reel Specifications:



© Embossed Taping

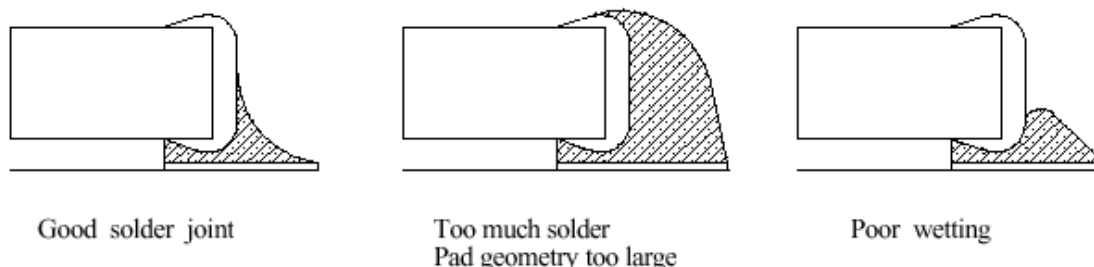
Tape in accordance can be supplied to IEC publication 286-3

SYMBOL	DESCRIPTION	TAPE SIZE							
		8mm			12mm				
		0402	0603	0805	1206	1210	1812	2220	
A₀	Width of Cavity	Dependent Chip Size to Minimize Rotation							
B₀	Length of Cavity	Dependent Chip Size to Minimize Rotation							
K₀	Depth of Cavity	Dependent Chip Size to Minimize Rotation							
T	Embossed Tape Thickness	0.30			0.30			Max.	
T₂	Overall Thickness	3.00			3.00			Min.	
D₀	Drive Hole Diameter	0.25	0.50	1.00	1.00	1.00	1.55	±0.05	
D₁	Diameter of Cavity Piercing						1.50	Min.	
P₁	Distance Between Cavity Center	4.00			8.00			±0.10	
P₂	Axial Distance Between Drive Hole Centers and Cavity Centers	2.00			2.00			±0.05	
P₀	Axial Distance Between Drive Hole Centers	4.00			4.00			±0.10	
W	Width of Tape	8.00			12.00			±0.20	
E	Distance Between Drive Hole Centers and Tape Edge	1.75			1.75			±0.10	
F	Distance Between Drive Hole Centers and Cavity Centers	3.50			5.5			±0.05	

- Note:**
1. Dimension in millimeters
 2. TVS/ESD/AUTO/ series are only supplied on tape.
 3. The packing and conveying material for chip size 0402 is "punched carrier paper tape", if need detailed specification. .

Soldering:

Solder joint profiles for silver/nickel/tin terminations



Soldering Notes :
 Iron soldering should be avoided, hot air methods are recommended for repair purposes.

静电放电抑制器 ESD

Type	Allowable continuous working voltage	Breakdown voltage at 1mA(DC) test current	Max. clamping voltage at spec. current (8/20 μ s) Vc (V@A)	Typ. Capacitance 1MHz C _{typ.} (pF)	Typical Inductance L _{typ.} (nH)
	V _{M(DC)} (V)	V _{N(DC)} (V)			
PD02S180H300PT	2~18	22 ~ 32	50@ 1	30	0.8
PD02S180H200PT	2~18	22 ~ 32	50@ 1	20	0.8
PD02S180H100PT	2~18	22 ~ 32	55@ 1	10	0.8
PD02S180H050PT	2~18	45 ~ 60	100@ 1	5	0.8
PD02S180H020CT	2~18	320 ~ 360	520@ 1	2	0.8
PD03S180H300PT	2~18	22 ~ 32	50@ 1	30	1.0
PD03S180H200PT	2~18	22 ~ 32	50@ 1	20	1.0
PD03S180H100PT	2~18	22 ~ 32	55@ 1	10	1.0
PD03S180H050PT	2~18	45 ~ 60	100@ 1	5	1.0
PD03S180H020PT	2~18	360 ~ 400	580@ 1	2	1.0

低电容值系列

Type	Continuous Operating Voltage (Max.)	ESD Capability ¹	Trigger Voltage (Typ.) ²	Clamping Voltage (Typ.) ²	Capacitance ³	Leakage Current (Typ.)	Response Time	ESD Pulse Withstand (Typ.) ⁴
UMS04A03T1V1	3.3 VDC	Direct Discharge: 8KV Air Discharge: 15KV	150 V	17V	<0.05 pF	<1nA	<1ns	>1000 pulses
UMS06A03T1V1								
UMS04A03T2V2			250V	25V				
UMS06A03T2V2								
UMS04A05T1V1	5.5VDC		150 V	17V				
UMS06A05T1V1								
UMS04A05T2V2			250V	25V				
UMS06A05T2V2								
UMS04A12T2V2	12 VDC		250 V	25V				
UMS06A12T2V2								
UMS04A24T2V2	24 VDC		250 V	25V				
UMS06A24T2V2								

Type	Continuous Operating Voltage (Max.)	ESD Capability ¹	Trigger Voltage (Typ.) ²	Clamping Voltage (Typ.) ²	Capacitance ³	Leakage Current (Typ.)	Response Time	ESD Pulse Withstand (Typ.) ⁴
MS04A03T1V1	3.3 VDC	Direct Discharge: 8KV Air Discharge: 15KV	150 V	17 V	<0.2 pF	<1nA	<1ns	>1000 pulses
MS06A03T1V1								
MS04A03T2V2			250V	25V				
MS06A03T2V2								
MS04A05T1V1	5.5 VDC		150 V	17 V				
MS06A05T1V1								
MS04A05T2V2			250V	25V				
MS06A05T2V2								
MS04A12T2V2	12 VDC		250 V	25 V				
MS06A12T2V2								
MS04A24T2V2	24 VDC		250 V	25 V				
MS06A24T2V2								

贴片压敏电阻 CHIP VARISTOR

Diode-Mode:

Type	Allowable continuous working voltage	Breakdown voltage at 1mA(DC) test current	Max. clamping voltage at spec. current (8/20 μ s)	Typ. Capacitance 1MHz	Typical Inductance
	V _{M(DC)} (V)	V _{N(DC)} (V)	V _c (V@A)	C _{typ.} (pF)	L _{typ.} (nH)
PD02S3R3DM271PT	3.3	4.5 ~ 6.0	9.5@ 1	250 ~ 300	0.8
PD02S5R5DM301PT	5.5	7.8 ~ 9.8	15.0@ 1	280 ~ 330	0.8
PD02S120DM201PT	12.0	15.0 ~ 18.0	25.5@ 1	170 ~ 210	0.8
PD03S5R5DM651PT	5.5	7.8 ~ 9.8	15.0@ 1	570 ~ 710	1.0
PD03S120DM311PT	12.0	15.0 ~ 18.0	25.5 @ 1	270 ~ 330	1.0

Normal-model:

Type	Allowable continuous working voltage	Breakdown voltage at 1mA(DC) test current	Max. clamping voltage at spec. current (8/20 μ s)	Typ. Capacitance 1MHz	Typical Inductance
	V _{M(DC)} (V)	V _{N(DC)} (V)	V _c (V@A)	C _{typ.} (pF)	L _{typ.} (nH)
PD02S030N271PT	3.3	4.5 ~ 6.0	10.5@ 1	250 ~ 300	0.8
PD02S050N161PT	5.5	8.0 ~ 11.0	18.5@ 1	140 ~ 180	0.8
PD02S120N121PT	12.0	16.0 ~ 19.0	27.5@ 1	100 ~ 140	0.8
PD02S180N850PT	18.0	23.0 ~ 28.0	40.5@ 1	80 ~ 120	0.8
PD03S030N701PT	3.3	4.5 ~ 6.0	10.5@ 1	630 ~ 770	1.0
PD03S050N651PT	5.5	8.0 ~ 11.0	18.5@ 1	570 ~ 710	1.0
PD03S120N311PT	12.0	16.0 ~ 19.0	27.5@ 1	270 ~ 330	1.0
PD03S180N231PT	18.0	23.0 ~ 28.0	40.5@ 1	200 ~ 250	1.0

低容量型:

PART NUMBER	Maximum Ratings (125°C)		Performance Specifications (25°C)				
	Maximum Working Voltage	Max. Non-Repetitive Surge Energy (10/1000µs)	Maximum Clamping Voltage at 1A (8/20µs)	Nominal Voltage at 1 mA(DC) Test Current		Typical Capacitance @1 MHz	Typical Inductance (from Impedance Analysis)
	V _{M(DC)}	W _{TM}	V _c	V _{N(DC) min.}	V _{N(DC) max.}	C	L
	(V)	(J)	(V)	(V)	(V)	(pF)	(nH)
JL 02 ML12 101 PT	2 ~ 12	0.05	30	14.0	18.5	100.0	<1.0
JL 02 ML14 101 PT	2 ~ 14	0.05	35	16.0	21.0	100.0	<1.0
JL 02 ML14 500 PT	2 ~ 14	0.03	35	16.0	21.0	50.0	<1.0
JL 02 ML18 101 PT	2 ~ 18	0.05	50	22.0	28.0	100.0	<1.0
JL 02 ML18 400 PT	2 ~ 18	0.03	50	22.0	28.0	40.0	<1.0
JL 02 ML18 300 PT	2 ~ 18	0.03	50	22.0	28.0	30.0	<1.0
JL 02 ML18 200 PT	2 ~ 18	0.005	55	22.0	32.0	20.0	<1.0
JL 02 ML18 100 PT	2 ~ 18	0.005	55	22.0	32.0	10.0	<1.0
JL 02 ML18 050 PT	2 ~ 18	0.005	110	45.0	60.0	5.0	<1.0
JL 02 ML18 030 PT	2 ~ 18	0.005	270	135.0	165.0	3.0	<1.0
JL 03 ML12 101 PT	2 ~ 12	0.05	30	14.0	18.5	100.0	<1.0
JL 03 ML14 101 PT	2 ~ 14	0.05	35	16.0	21.0	100.0	<1.0
JL 03 ML14 500 PT	2 ~ 14	0.03	35	16.0	21.0	50.0	<1.0
JL 03 ML18 101 PT	2 ~ 18	0.05	50	22.0	28.0	100.0	<1.0
JL 03 ML18 400 PT	2 ~ 18	0.03	50	22.0	28.0	40.0	<1.0
JL 03 ML18 300 PT	2 ~ 18	0.005	55	22.0	32.0	30.0	<1.0
JL 03 ML18 200 PT	2 ~ 18	0.005	55	22.0	32.0	20.0	<1.0
JL 03 ML18 100 PT	2 ~ 18	0.005	55	22.0	32.0	10.0	<1.0
JL 03 ML18 060 PT	2 ~ 18	0.005	55	22.0	32.0	6.0	<1.0
JL 03 ML18 050 PT	2 ~ 18	0.005	110	45.0	60.0	5.0	<1.0
JL 03 ML18 030 PT	2 ~ 18	0.005	270	135.0	165.0	3.0	<1.0

高功率型:

PART NUMBER	Maximum Ratings(125°C)					Specifications(25°C)		
	Maximum Continuous Working Voltage		Maximum Non-Repetitive Surge Current (8/20µs)	Maximum Non-Repetitive Surge Energy (10/1000µs)	Maximum Clamping Voltage at Specified Current (8/20µs)	Nominal Voltage at 1 mA (DC) Test Current		Typical Capacitance @1 MHz
	V _{M(DC)}	V _{M(AC)}	I _{TM}	W _{TM}	V _c	V _{N(DC) min.}	V _{N(DC) max.}	C
	(V)	(V)	(A)	(J)	(V)	(V)	(V)	(pF)
JV 02 ML 03 251PT	3.3	2.5	6	0.02	12 at 1 A	3.7	7.0	250
JV 02 ML 05 281PT	5.5	4	20	0.05	17 at 1 A	7.1	9.8	280
JV 02 ML 09 201PT	9	6	20	0.05	26 at 1 A	10.0	14.5	200
JV 02 ML 12 161PT	12	9	20	0.05	30 at 1 A	14.0	18.5	160
JV 02 ML 14 141PT	14	11	20	0.05	35 at 1 A	16.0	21.0	145
JV 02 ML 18 850PT	18	14	20	0.05	42 at 1 A	22.0	28.0	85
JV 02 ML 22 750PT	22	17	20	0.05	47 at 1 A	24.3	30.0	75

PART NUMBER	Maximum Ratings(125°C)					Specifications(25°C)		
	Maximum Continuous Working Voltage		Maximum Non-Repetitive Surge Current (8/20µs)	Maximum Non-Repetitive Surge Energy (10/1000µs)	Maximum Clamping Voltage at Specified Current (8/20µs)	Nominal Voltage at 1 mA (DC) Test Current		Typical Capacitance @1 MHz
	V _{M(DC)}	V _{M(AC)}	I _{TM}	W _{TM}	V _c	V _{N(DC) min.}	V _{N(DC) max.}	C
	(V)	(V)	(A)	(J)	(V)	(V)	(V)	(pF)
JV03ML03112PT	3.3	2.5	30	0.1	12 at 1 A	3.8	7.0	1100
JV03ML05361PT	5.5	4	20	0.1	17 at 1 A	7.1	9.8	360
JV03ML05801PT	5.5	4	30	0.1	17 at 2 A	7.1	9.8	800
JV03ML09301PT	9	6	30	0.1	26 at 1 A	10.0	14.5	300
JV03ML12341PT	12	9	30	0.1	30 at 1 A	14.0	18.5	340
JV03ML14241PT	14	11	30	0.1	35 at 1 A	16.0	21.0	240
JV03ML18221PT	18	14	30	0.1	42 at 1 A	22.0	28.0	220
JV03ML22181PT	22	17	30	0.1	47 at 1 A	24.3	30.0	180
JV03ML26900PT	26	20	30	0.1	58 at 1 A	29.5	38.0	90
JV03ML30111PT	30	25	30	0.1	65 at 1 A	35.0	43.0	110

PART NUMBER	Maximum Ratings(125°C)					Specifications(25°C)		
	Maximum Continuous Working Voltage		Maximum Non-Repetitive Surge Current (8/20µs)	Maximum Non-Repetitive Surge Energy (10/1000µs)	Maximum Clamping Voltage at Specified Current (8/20µs)	Nominal Voltage at 1 mA (DC) Test Current		Typical Capacitance @1 MHz
	V _{M(DC)}	V _{M(AC)}	I _{TM}	W _{TM}	V _c	V _{N(DC) min.}	V _{N(DC) max.}	C
	(V)	(V)	(A)	(J)	(V)	(V)	(V)	(pF)
JV 05ML 03302 PT	3.3	2.5	60	0.3	12 at 1A	3.8	7.0	3000
JV 05ML 05172 PT	5.5	4	100	0.3	17 at 1A	7.1	9.8	1700
JV 05ML 09971 PT	9	6	120	0.3	26 at 1A	10.0	14.5	970
JV 05ML 12951 PT	12	9	120	0.3	30 at 1A	14.0	18.5	950
JV 05ML 14102 PT	14	11	120	0.3	35 at 1A	16.0	21.0	1050
JV 05ML 18691 PT	18	14	120	0.3	42 at 1A	22.0	28.0	690
JV 05ML 22621 PT	22	17	120	0.3	47 at 1A	24.3	30.0	620
JV 05ML 26421 PT	26	20	120	0.3	58 at 1A	29.5	38.0	420
JV 05ML 30291 PT	30	25	100	0.3	65 at 1A	35.0	43.0	290
JV 05ML 68850 PT	68	50	80	0.3	140at 1A	74.0	90.0	85

PART NUMBER	Maximum Ratings(125°C)					Specifications(25°C)		
	Maximum Continuous Working Voltage		Maximum Non-Repetitive Surge Current (8/20µs)	Maximum Non-Repetitive Surge Energy (10/1000µs)	Maximum Clamping Voltage at Specified Current (8/20µs)	Nominal Voltage at 1 mA (DC) Test Current		Typical Capacitance @1 MHz
	V _{M(DC)}	V _{M(AC)}	I _{TM}	W _{TM}	V _c	V _{N(DC) min.}	V _{N(DC) max.}	C
	(V)	(V)	(A)	(J)	(V)	(V)	(V)	(pF)
JV06ML05152PT	5.5	4	40	0.1	15.5 at 2 A	7.1	9.8	1500
JV06ML05402PT	5.5	4	75	0.2	15.5at 10 A	7.1	9.8	4000
JV06ML18112PT	18	14	200	0.4	40 at 10A	20.0	28.0	1100
JV06ML30501PT	30	25	200	0.8	65 at 10A	35.0	43.0	500
JV06ML33701PT	33	26	200	0.8	72 at 10 A	38.0	49.0	700
JV06ML38451PT	38	30	200	0.8	77 at 10 A	42.3	51.7	450
JV06ML56311PT	56	40	180	1.0	110 at 10 A	61.2	74.0	310
JV06ML68301PT	68	50	180	1.0	135 at 10 A	74.0	90.0	300

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	Maximum Continuous Working Voltage		Maximum Non-Repetitive Surge Current (8/20µs)	Maximum Non-Repetitive Surge Energy (10/1000µs)	Maximum Clamping Voltage at Specified Current (8/20µs)	Nominal Voltage at 1 mA (DC) Test Current		Typical Capacitance @1 MHz
	V _{M(DC)}	V _{M(AC)}	I _{TM}	W _{TM}	V _c	V _{N(DC) min.}	V _{N(DC) max.}	C
	(V)	(V)	(A)	(J)	(V)	(V)	(V)	(pF)
JV10ML30541PT	30	25	200	0.9	65 at 10 A	35.0	43.0	540
JV10ML30931PT	30	25	280	1.2	62 at 10 A	35.0	43.0	930
JV10ML38701PT	38	30	250	2.0	78 at 10 A	42.3	51.7	700
JV10ML56331PT	56	40	250	2.3	110 at 10 A	61.2	74.0	330

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	V _{M(DC)}	V _{M(AC)}	I _{TM}	W _{TM}	V _c	V _{N(DC) min.}	V _{N(DC) max.}	C
	(V)	(V)	(A)	(J)	(V)	(V)	(V)	(pF)
JV12ML05113PT	5.5	4	250	0.5	15.5 at 10 A	7.1	9.8	11000
JV12ML12642PT	12	9	400	1.0	30 at 10 A	14.0	18.5	6400
JV12ML18552PT	18	14	600	2.0	38 at 10 A	20.0	28.0	5500
JV12ML30292PT	30	25	800	3.6	65 at 10 A	35.0	43.0	2900
JV12ML38222PT	38	30	800	4.2	77 at 10 A	42.3	51.7	2200
JV12ML45192PT	45	35	500	4.5	90 at 10 A	50.0	61.0	1900
JV12ML56132PT	56	40	500	4.8	110 at 10 A	61.2	74.0	1300
JV12ML68771PT	68	50	400	4.5	135 at 10 A	74.0	90.0	770
JV12ML85401PT	85	60	400	5.8	165 at 10 A	91.0	115.0	400
JV12ML121301PT	120	95	400	5.8	250 at 10 A	135.0	165.0	300
JV12ML151201PT	150	115	300	5.0	290 at 10 A	162.0	198.0	200
JV12ML171181PT	170	130	200	4.5	340 at 10 A	184.0	228.0	180

PART NUMBER	Maximum Ratings(125°C)					Specifications(25°C)		
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	V _{M(DC)}	V _{M(AC)}	I _{TM}	W _{TM}	V _c	V _{N(DC)} min.	V _{N(DC)} max.	C
	(V)	(V)	(A)	(J)	(V)	(V)	(V)	(pF)
JV20ML18113PT	18	14	600	3.6	40 at 10 A	20.0	30.0	11000
JV20ML38472PT	38	30	1200	12.0	77 at 10 A	42.3	51.7	4700
JV20ML45402PT	45	35	1000	7.5	90 at 10 A	50.0	61.0	4000
JV20ML68222PT	68	50	800	5.5	135 at 10 A	74.0	90.0	2200