



Micro Commercial Components

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# SMLJ5.0 THRU SMLJ170CA

## Features

- Lead Free Finish/Rohs Compliant (Note1) ("P" Suffix designates Compliant. See ordering information)
- For surface mount application in order to optimize board space
- Built-in strain relief
- Glass passivated junction
- Excellent clamping capability
- Repetition Rate( duty cycle): 0.5%
- Fast response time: typical less than 1ps from 0V to BV min
- Typical  $I_D$  less than 1uA above 10V
- High temperature soldering: 260°C/10 seconds at terminals
- Case Material : Molded Plastic. UL Flammability Classification Rating 94V-0 and MSL rating 1
- UL Recognized File # E222849

## Mechanical Data

- Case Material : Molded Plastic UL Flammability Classification Rating UL94V-0 and MSL rating 1
- Terminals: solderable per MIL-STD-750, Method 2026
- Polarity: Color band denotes positive end( cathode) except Bi-directional types.
- Standard packaging: 16mm tape per ( EIA 481).
- Weight: 0.007 ounce, 0.21 gram

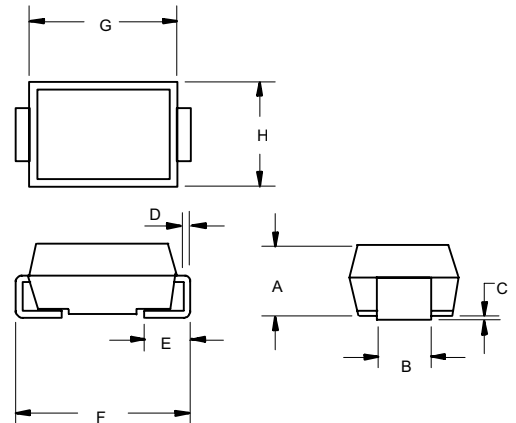
### Maximum Ratings @ 25°C Unless Otherwise Specified

Peak Pulse Current on 10/1000us waveform(Note2, Fig4)	$I_{PPM}$	See Table 1	Amps
Peak Pulse Power Dissipation on 10/1000us waveform(Note2,3, Fig1)	$P_{PPM}$	Minimum 3000	Watts
Peak forward surge current (JEDEC Method) (Note 3,4)	$I_{FSM}$	200.0	Amps
Operation And Storage Temperature Range	$T_J, T_{STG}$	-55°C to +150°C	
Thermal Resistance Junction to Ambient&Lead	$R_{thJA}, R_{thJL}$	75 17.5	°C/W

- NOTES: 1. High Temperature Solder Exemptions Applied, see EU Directive Annex 7.  
 2. Non-repetitive current pulse per Fig.3 and derated above  $T_A=25^\circ\text{C}$  per Fig.2.  
 3. Mounted on 8.0mm<sup>2</sup> copper pads to each terminal.  
 4. 8.3ms, single half sine-wave or equivalent square wave, duty cycle=4 pulses per. Minutes maximum.

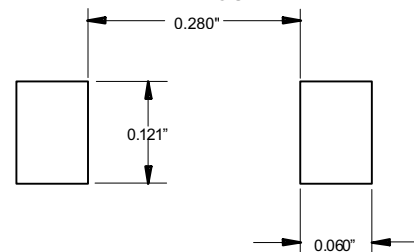
## Transient Voltage Suppressor 5.0 to 170 Volts 3000 Watt

### DO-214AB (SMC) (LEAD FRAME)



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.079	.103	2.00	2.62	
B	.115	.121	2.92	3.07	
C	.002	.008	0.051	0.203	
D	.006	.012	0.152	0.305	
E	.030	.050	0.76	1.27	
F	.305	.320	7.75	8.13	
G	.260	.280	6.60	7.11	
H	.220	.245	5.59	6.22	

### SUGGESTED SOLDER PAD LAYOUT



# SMLJ5.0 thru SMLJ170CA

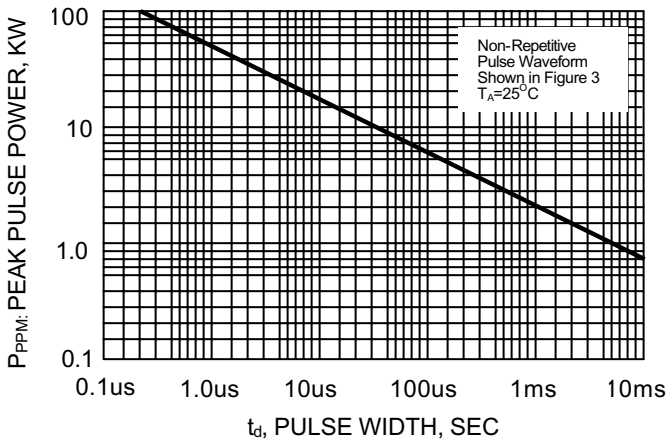


Fig. 1-PEAL PULSE POWER VS PULSE.TIME

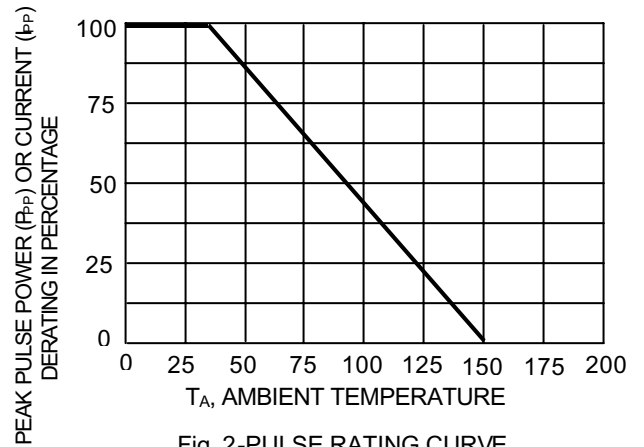


Fig. 2-PULSE RATING CURVE

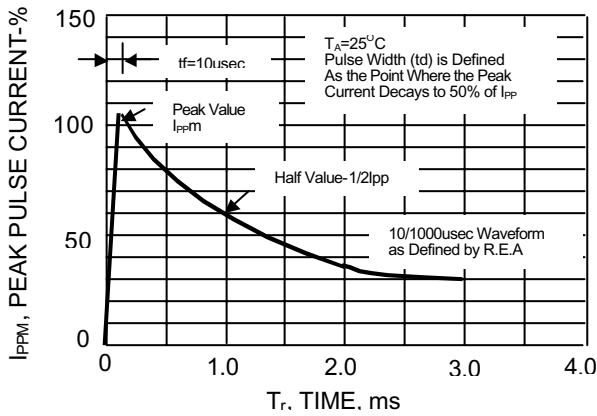


Fig. 3-PULSE WAVEFORM

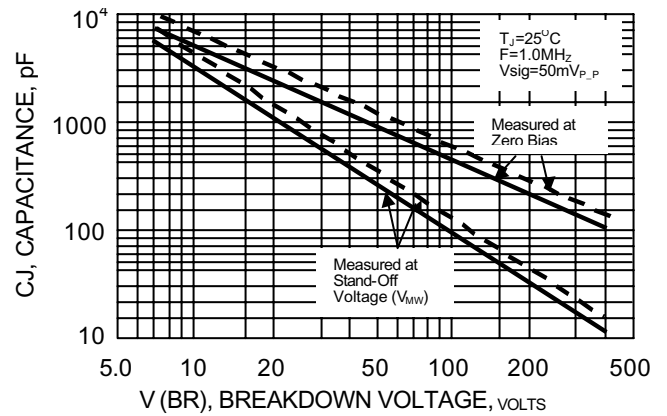


Fig. 4-TYPICAL CAPACITANCE VS STAND-OFF VOLTAGE

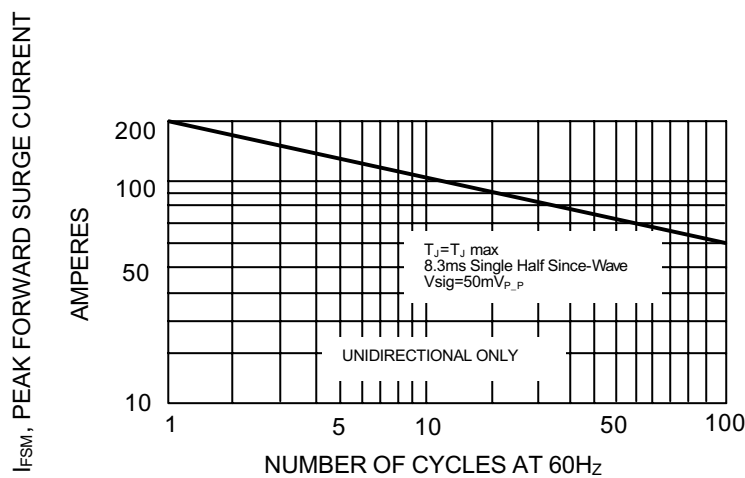


Fig-5MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CUTTENT

**ELECTRICAL CHARACTERISTICS @25°C**

MCC PART NUMBER	REVERSE STAND-OFF VOLTAGE $V_{WM}$ (VOLTS)	BREAKDOWN VOLTAGE $V_{(BR)} @ I_T$ (VOLTS)			MAXIMUM CLAMPING VOLTAGE @ $I_{PP}$ (VOLTS)	PEAK PULSE CURRENT $I_{PP}$ (AMPS)	MAXIMUM REVERSE LEAKAGE @ $V_{WM}$ $I_b$ ( $\mu$ A)	MARKING CODE	
		MIN	MAX	$I_T$ (mA)				1	2
SMLJ5.0C	5.0	6.40	7.30	10	9.6	312.5	1000	DDD	IDD
SMLJ5.0CA	5.0	6.40	7.00	10	9.2	326.0	1000	DDE	IDE
SMLJ6.0C	6.0	6.67	8.15	10	11.4	263.2	1000	DDF	IDF
SMLJ6.0CA	6.0	6.67	7.37	10	10.3	291.3	1000	DDG	IDG
SMLJ6.5C	6.5	7.22	8.82	10	12.3	243.9	500	DDH	IDH
SMLJ6.5CA	6.5	7.22	7.98	10	11.2	267.9	500	DDK	IDK
SMLJ7.0C	7.0	7.78	9.51	10	13.3	225.6	200	DDL	IDL
SMLJ7.0CA	7.0	7.78	8.60	10	12.0	250.0	200	DDM	IDM
SMLJ7.5C	7.5	8.33	10.2	1	14.3	209.8	100	DDN	IDN
SMLJ7.5CA	7.5	8.33	9.21	1	12.9	232.6	100	DDP	IDP
SMLJ8.0C	8.0	8.89	10.9	1	15.0	200.0	50	DDQ	IDQ
SMLJ8.0CA	8.0	8.89	9.83	1	13.6	220.6	50	DDR	IDR
SMLJ8.5C	8.5	9.44	11.5	1	15.9	188.6	25	DDS	IDS
SMLJ8.5CA	8.5	9.44	10.4	1	14.4	208.4	25	DDT	IDT
SMLJ9.0C	9.0	10.0	12.2	1	16.9	177.4	10	DDU	IDU
SMLJ9.0CA	9.0	10.0	11.1	1	15.4	194.8	10	DDV	IDV
SMLJ10C	10	11.1	13.6	1	18.8	159.6	5	DDW	IDW
SMLJ10CA	10	11.1	12.3	1	17.0	176.4	5	DDX	IDX
SMLJ11C	11	12.2	14.9	1	20.1	149.2	5	DDY	IDY
SMLJ11CA	11	12.2	13.5	1	18.2	164.8	5	DDZ	IDZ
SMLJ12C	12	13.3	16.3	1	22.0	136.4	5	DED	IED
SMLJ12CA	12	13.3	14.7	1	19.9	150.6	5	DEE	IEE
SMLJ13C	13	14.4	17.6	1	23.8	126.0	5	DEF	IEF
SMLJ13CA	13	14.4	15.9	1	21.5	139.4	5	DEG	IEG
SMLJ14C	14	15.6	19.1	1	25.8	116.2	5	DEH	IEH
SMLJ14CA	14	15.6	17.2	1	23.2	129.4	5	DEK	IEK
SMLJ15C	15	16.7	20.4	1	26.9	111.6	5	DEL	IEL
SMLJ15CA	15	16.7	18.5	1	24.4	123.0	5	DEM	IEM
SMLJ16C	16	17.8	21.8	1	28.8	104.2	5	DEN	IEN
SMLJ16CA	16	17.8	19.7	1	26.0	115.4	5	DEP	IEP
SMLJ17C	17	18.9	23.1	1	30.5	98.4	5	DEQ	IEQ
SMLJ17CA	17	18.9	20.9	1	27.6	106.6	5	DER	IER
SMLJ18C	18	20.0	24.4	1	32.2	93.2	5	DES	IES
SMLJ18CA	18	20.0	22.1	1	29.2	102.8	5	DET	IET
SMLJ20C	20	22.2	27.1	1	35.8	83.8	5	DEU	IEU
SMLJ20CA	20	22.2	24.5	1	32.4	92.6	5	DEV	IEV

## ELECTRICAL CHARACTERISTICS @25°C

MCC PART NUMBER	REVERSE STAND-OFF VOLTAGE $V_{WM}$ (VOLTS)	BREAKDOWN VOLTAGE $V_{(BR)} @ I_T$ (VOLTS)			MAXIMUM CLAMPING VOLTAGE @ $I_{PP}$ (VOLTS)	PEAK PULSE CURRENT $I_{PP}$ (AMPS)	MAXIMUM REVERSE LEAKAGE @ $V_{WM}$ $I_D$ ( $\mu$ A)	MARKING CODE	
		MIN	MAX	$I_T$ (mA)				1	2
SMLJ22C	22	24.4	29.8	1	39.4	76.2	5	IEW	DEW
SMLJ22CA	22	24.4	26.9	1	35.5	84.4	5	IEX	DEX
SMLJ24C	24	26.7	32.6	1	43.0	69.8	5	IEY	DEY
SMLJ24CA	24	26.7	29.5	1	38.9	77.2	5	IEZ	DEZ
SMLJ26C	26	28.9	35.3	1	46.6	64.4	5	IFD	DFD
SMLJ26CA	26	28.9	31.9	1	42.1	71.2	5	IFE	DFE
SMLJ28C	28	31.1	38.0	1	50.0	60.0	5	IFF	DFF
SMLJ28CA	28	31.1	34.4	1	45.4	66.0	5	IFG	DFG
SMLJ30C	30	33.3	40.7	1	53.5	56.0	5	IFH	DFH
SMLJ30CA	30	33.3	36.8	1	48.4	62.0	5	IFK	DFK
SMLJ33C	33	36.7	44.9	1	59.0	50.4	5	IFL	DFL
SMLJ33CA	33	36.7	40.6	1	53.3	56.2	5	IFM	DFM
SMLJ36C	36	40.0	48.9	1	64.3	46.6	5	IFN	DFN
SMLJ36CA	36	40.0	44.2	1	58.1	51.6	5	IFP	DFP
SMLJ40C	40	44.4	54.3	1	71.4	42.0	5	IFQ	DFQ
SMLJ40CA	40	44.4	49.1	1	64.5	46.4	5	IFR	DFR
SMLJ43C	43	47.8	58.4	1	76.7	39.2	5	IFS	DFS
SMLJ43CA	43	47.8	52.8	1	69.4	43.2	5	IFT	DFT
SMLJ45C	45	50.0	61.1	1	80.3	37.4	5	IFU	DFU
SMLJ45CA	45	50.0	55.3	1	72.7	41.2	5	IFV	DFV
SMLJ48C	48	53.3	65.1	1	85.5	35.0	5	IFW	DFW
SMLJ48CA	48	53.3	58.9	1	77.4	38.8	5	IFX	DFX
SMLJ51C	51	56.7	69.3	1	91.1	37.0	5	IFY	DFY
SMLJ51CA	51	56.7	62.7	1	82.4	36.4	5	IFZ	DFZ
SMLJ54C	54	60.0	73.3	1	96.3	31.2	5	IGD	DGD
SMLJ54CA	54	60.0	66.3	1	87.1	34.4	5	IGE	DGE
SMLJ58C	58	64.4	78.7	1	103	39.2	5	IGF	DGF
SMLJ58CA	58	64.4	71.2	1	93.6	32.0	5	IGG	DGG
SMLJ60C	60	66.7	81.5	1	107	28.0	5	IGH	DGH
SMLJ60CA	60	66.7	73.7	1	96.8	31.0	5	IGK	DGK
SMLJ64C	64	71.1	86.9	1	114	26.4	5	IGL	DGL
SMLJ64CA	64	71.1	78.6	1	103	29.2	5	IGM	DGM
SMLJ70C	70	77.8	95.1	1	125	24.0	5	IGN	DGN
SMLJ70CA	70	77.8	86.0	1	113	26.6	5	IGP	DGP
SMLJ75C	75	83.3	102	1	134	22.4	5	IGQ	DGQ
SMLJ75CA	75	83.3	92.1	1	121	24.8	5	IGR	DGR
SMLJ78C	78	86.7	106	1	139	21.6	5	IGS	DGS
SMLJ78CA	78	86.7	95.8	1	126	22.8	5	IGT	DGT
SMLJ85C	85	94.4	115	1	151	19.8	5	IGU	DGU
SMLJ85CA	85	94.4	104	1	137	20.8	5	IGV	DGV
SMLJ90C	90	100	122	1	160	18.8	5	IGW	DGW
SMLJ90CA	90	100	111	1	146	20.6	5	IGX	DGX
SMLJ100C	100	111	136	1	179	16.8	5	IGY	DGY
SMLJ100CA	100	111	123	1	162	18.6	5	IGZ	DGZ
SMLJ110C	110	122	149	1	196	15.4	5	IHD	DHD
SMLJ110CA	110	122	135	1	177	16.8	5	IHE	DHE
SMLJ120C	120	133	163	1	214	14.0	5	IHF	DHF
SMLJ120CA	120	133	147	1	193	15.6	5	IHG	DHG
SMLJ130C	130	144	176	1	231	13.0	5	IHH	DHH
SMLJ130CA	130	144	159	1	209	14.4	5	IHK	DHK
SMLJ150C	150	167	204	1	268	11.2	5	IHL	DHL
SMLJ150CA	150	167	185	1	243	12.4	5	IHM	DHM
SMLJ160C	160	178	218	1	287	10.4	5	IHN	DHN
SMLJ160CA	160	178	197	1	259	11.6	5	IHP	DHP
SMLJ170C	170	189	231	1	304	9.8	5	IHQ	DHQ
SMLJ170CA	170	189	209	1	275	11.0	5	IHR	DHR

## ELECTRICAL CHARACTERISTICS @25°C

MCC PART NUMBER	REVERSE STAND-OFF VOLTAGE $V_{WM}$ (VOLTS)	BREAKDOWN VOLTAGE $V_{(BR)}$ @ $I_T$ (VOLTS)			MAXIMUM CLAMPING VOLTAGE @ $I_{PP}$ (VOLTS)	PEAK PULSE CURRENT $I_{PP}$ (AMPS)	MAXIMUM REVERSE LEAKAGE @ $V_{WM}$ $I_D$ ( $\mu$ A)	MARKING CODE	
		MIN	MAX	$I_T$ (mA)				1	2
SMLJ5.0	5.0	6.40	7.30	10	9.6	312.5	1000	RDD	
SMLJ5.0A	5.0	6.40	7.00	10	9.2	326.0	1000	RDE	
SMLJ6.0	6.0	6.67	8.15	10	11.4	263.2	1000	RDF	
SMLJ6.0A	6.0	6.67	7.37	10	10.3	291.3	1000	RDG	
SMLJ6.5	6.5	7.22	8.82	10	12.3	243.9	500	RDH	
SMLJ6.5A	6.5	7.22	7.98	10	11.2	267.9	500	RDK	
SMLJ7.0	7.0	7.78	9.51	10	13.3	225.6	200	PDL	HDL
SMLJ7.0A	7.0	7.78	8.60	10	12.0	250.0	200	PDM	HDM
SMLJ7.5	7.5	8.33	10.2	1	14.3	209.8	100	PDN	HDN
SMLJ7.5A	7.5	8.33	9.21	1	12.9	232.6	100	PDO	HDP
SMLJ8.0	8.0	8.89	10.9	1	15.0	200.0	50	PDP	HDQ
SMLJ8.0A	8.0	8.89	9.83	1	13.6	220.6	50	PDQ	HDR
SMLJ8.5	8.5	9.44	11.5	1	15.9	188.6	25	PDR	HDS
SMLJ8.5A	8.5	9.44	10.4	1	14.4	208.4	25	PDS	HDT
SMLJ9.0	9.0	10.0	12.2	1	16.9	177.4	10	PDT	HDU
SMLJ9.0A	9.0	10.0	11.1	1	15.4	194.8	10	PDU	HDV
SMLJ10	10	11.1	13.6	1	18.8	159.6	5	PDV	HDW
SMLJ10A	10	11.1	12.3	1	17.0	176.4	5	PDW	HDX
SMLJ11	11	12.2	14.9	1	20.1	149.2	5	PDX	HDY
SMLJ11A	11	12.2	13.5	1	18.2	164.8	5	PDY	HDZ
SMLJ12	12	13.3	16.3	1	22.0	136.4	5	PDZ	HED
SMLJ12A	12	13.3	14.7	1	19.9	150.6	5	PED	HEE
SMLJ13	13	14.4	17.6	1	23.8	126.0	5	PEF	HEF
SMLJ13A	13	14.4	15.9	1	21.5	139.4	5	PEG	HEG
SMLJ14	14	15.6	19.1	1	25.8	116.2	5	PEH	HEH
SMLJ14A	14	15.6	17.2	1	23.2	129.4	5	PEK	HEK
SMLJ15	15	16.7	20.4	1	26.9	111.6	5	PEL	HEL
SMLJ15A	15	16.7	18.5	1	24.4	123.0	5	PEM	HEM
SMLJ16	16	17.8	21.8	1	28.8	104.2	5	PEN	HEN
SMLJ16A	16	17.8	19.7	1	26.0	115.4	5	PEP	HEP
SMLJ17	17	18.9	23.1	1	30.5	98.4	5	PEQ	HEQ
SMLJ17A	17	18.9	20.9	1	27.6	106.6	5	PER	HER
SMLJ18	18	20.0	24.4	1	32.2	93.2	5	PES	HES
SMLJ18A	18	20.0	22.1	1	29.2	102.8	5	PET	HET
SMLJ20	20	22.2	27.1	1	35.8	83.8	5	PEU	HEU
SMLJ20A	20	22.2	24.5	1	32.4	92.6	5	PEV	HEV

**ELECTRICAL CHARACTERISTICS @25°C**

MCC PART NUMBER	REVERSE STAND-OFF VOLTAGE $V_{WM}$ (VOLTS)	BREAKDOWN VOLTAGE $V_{(BR)}$ @ $I_T$ (VOLTS)			MAXIMUM CLAMPING VOLTAGE @ $I_{PP}$ (VOLTS)	PEAK PULSE CURRENT $I_{PP}$ (AMPS)	MAXIMUM REVERSE LEAKAGE @ $V_{WM}$ $I_D$ ( $\mu$ A)	MARKING CODE	
		MIN	MAX	$I_T$ (mA)				1	2
SMLJ22	22	24.4	29.8	1	39.4	76.2	5	PEW	HEW
SMLJ22A	22	24.4	26.9	1	35.5	84.4	5	PEX	HEX
SMLJ24	24	26.7	32.6	1	43.0	69.8	5	PEY	HEY
SMLJ24A	24	26.7	29.5	1	38.9	77.2	5	PEZ	HEZ
SMLJ26	26	28.9	35.3	1	46.6	64.4	5	PFD	HFD
SMLJ26A	26	28.9	31.9	1	42.1	71.2	5	PFE	HFE
SMLJ28	28	31.1	38.0	1	50.0	60.0	5	PFF	HFF
SMLJ28A	28	31.1	34.4	1	45.4	66.0	5	PFG	HFG
SMLJ30	30	33.3	40.7	1	53.5	56.0	5	PFH	HFH
SMLJ30A	30	33.3	36.8	1	48.4	62.0	5	PFK	HFK
SMLJ33	33	36.7	44.9	1	59.0	50.4	5	PFL	HFL
SMLJ33A	33	36.7	40.6	1	53.3	56.2	5	PFM	HFM
SMLJ36	36	40.0	48.9	1	64.3	46.6	5	PFN	HFN
SMLJ36A	36	40.0	44.2	1	58.1	51.6	5	PFP	HFP
SMLJ40	40	44.4	54.3	1	71.4	42.0	5	PFQ	HFQ
SMLJ40A	40	44.4	49.1	1	64.5	46.4	5	PFR	HFR
SMLJ43	43	47.8	58.4	1	76.7	39.2	5	PFS	HFS
SMLJ43A	43	47.8	52.8	1	69.4	43.2	5	PFT	HFT
SMLJ45	45	50.0	61.1	1	80.3	37.4	5	PFU	HFU
SMLJ45A	45	50.0	55.3	1	72.7	41.2	5	PFV	HFV
SMLJ48	48	53.3	65.1	1	85.5	35.0	5	PFW	HFW
SMLJ48A	48	53.3	58.9	1	77.4	38.8	5	PFX	HFX
SMLJ51	51	56.7	69.3	1	91.1	37.0	5	PFY	HFY
SMLJ51A	51	56.7	62.7	1	82.4	36.4	5	PFZ	HFZ
SMLJ54	54	60.0	73.3	1	96.3	31.2	5	PGD	HGD
SMLJ54A	54	60.0	66.3	1	87.1	34.4	5	PGE	HGE
SMLJ58	58	64.4	78.7	1	103	39.2	5	PGF	HGF
SMLJ58A	58	64.4	71.2	1	93.6	32.0	5	PGG	HGG
SMLJ60	60	66.7	81.5	1	107	28.0	5	PGH	HGH
SMLJ60A	60	66.7	73.7	1	96.8	31.0	5	PGK	HGK
SMLJ64	64	71.1	86.9	1	114	26.4	5	PGL	HGL
SMLJ64A	64	71.1	78.6	1	103	29.2	5	PGM	HGM
SMLJ70	70	77.8	95.1	1	125	24.0	5	PGN	HGN
SMLJ70A	70	77.8	86.0	1	113	26.6	5	PGP	HGP
SMLJ75	75	83.3	102	1	134	22.4	5	PGQ	HGQ
SMLJ75A	75	83.3	92.1	1	121	24.8	5	PGR	HGR
SMLJ78	78	86.7	106	1	139	21.6	5	PGS	HGS
SMLJ78A	78	86.7	95.8	1	126	22.8	5	PGT	HGT
SMLJ85	85	94.4	115	1	151	19.8	5	PGU	HGU
SMLJ85A	85	94.4	104	1	137	20.8	5	PGV	HGV
SMLJ90	90	100	122	1	160	18.8	5	PGW	HGW
SMLJ90A	90	100	111	1	146	20.6	5	PGX	HGX
SMLJ100	100	111	136	1	179	16.8	5	PGY	HGY
SMLJ100A	100	111	123	1	162	18.6	5	PGZ	HGZ
SMLJ110	110	122	149	1	196	15.4	5	PHD	HHD
SMLJ110A	110	122	135	1	177	16.8	5	PHE	HHE
SMLJ120	120	133	163	1	214	14.0	5	PHF	HHF
SMLJ120A	120	133	147	1	193	15.6	5	PHG	HHG
SMLJ130	130	144	176	1	231	13.0	5	PHH	HHH
SMLJ130A	130	144	159	1	209	14.4	5	PHK	HHK
SMLJ150	150	167	204	1	268	11.2	5	PHL	HHL
SMLJ150A	150	167	185	1	243	12.4	5	PHM	HHM
SMLJ160	160	178	218	1	287	10.4	5	PHN	HHN
SMLJ160A	160	178	197	1	259	11.6	5	PHP	HHP
SMLJ170	170	189	231	1	304	9.8	5	PHQ	HHQ
SMLJ170A	170	189	209	1	275	11.0	5	PHR	HHR



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## Ordering Information

Device	Packing
(Part Number)-TP	Tape&Reel;3Kpcs/Reel

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