

Surface Mount Silicon Zener Diodes

FEATURES

- Low profile package
- Ideal for automated placement
- Glass passivated junction
- Built-in strain relief
- Low inductance
- Typical IR less than 0.5μA above 11V
- ESD Rating of Class 3B (HBM) per JEDEC.
- Moisture sensitivity level: level 1, per J-STD-020
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21 definition



DO-214AC (SMA)



MECHANICAL DATA

Case: DO-214AC (SMA)

Molding compound, UL flammability classification rating 94V-0

Base P/N with suffix "G" on packing code - green compound (halogen-free)

Base P/N with prefix "H" on packing code - AEC-Q101 qualified

Terminal: Matte tin plated leads, solderable per JESD22-B102

Meet JESD 201 class 1A whisker test,

with prefix "H" on packing code meet JESD 201 class 2 whisker test

Polarity: Indicated by cathode band

Weight: 0.06 g (approximately)

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (T _A =25°C unless otherwise noted)			
PARAMETER	SYMBOL	Value	UNIT
DC power dissipation at T _L =75°C, measure at zero lead length (Note 1) derate above 75°C	P _D	1.5	Watts
		20	mW/°C
Peak forward surge current, 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	10	A
Operating junction temperature range	T _J	- 55 to +150	°C
Storage temperature range	T _{STG}	- 55 to +150	°C

Note 1: Mounted on Cu-Pad size 5mm x 5mm x 1.6mm on PCB

ORDERING INFORMATION					
PART NO.	AEC-Q101 QUALIFIED	PACKING CODE	GREEN COMPOUND CODE	PACKAGE	PACKING
1SMAxxxx (Note 1)	Prefix "H"	R3	Suffix "G"	SMA	1,800 / 7" Plastic reel
		R2		SMA	7,500 / 13" Paper reel
		M2		SMA	7,500 / 13" Plastic reel
		F3		Folded SMA	1,800 / 7" Plastic reel
		F2		Folded SMA	7,500 / 13" Paper reel
		F4		Folded SMA	7,500 / 13" Plastic reel

Note 1: "xxxx" defines voltage from 11V (1SMA5926) to 200V (1SMA5956)

EXAMPLE					
PREFERRED P/N	PART NO.	AEC-Q101 QUALIFIED	PACKING CODE	GREEN COMPOUND CODE	DESCRIPTION
1SMA5926 R3	1SMA5926		R3		
1SMA5926 R3G	1SMA5926		R3	G	Green compound
1SMA5926HR3	1SMA5926	H	R3		AEC-Q101 qualified

RATINGS AND CHARACTERISTICS CURVES (TA=25°C unless otherwise noted)

Device (Note 1)	Device Marking Code	Nominal Zener Voltage			Test Current	Zener Impedance			Leakage Current		Maximum DC Zener Current
		Vz@Iz			IzT	ZzT@IzT	Zzk@Izk		IR@VR		IzM
		V			mA	Ω	Ω	mA	μA	V	mA(DC)
		Min.	Nom. (Notes 2)	Max.							
1SMA5926	926A	10.45	11	11.55	34.1	5.5	550	0.25	0.5	8.4	136
1SMA5927	927A	11.40	12	12.60	31.2	6.5	550	0.25	0.5	9.1	125
1SMA5928	928A	12.35	13	13.65	28.8	7.0	550	0.25	0.5	9.9	115
1SMA5929	929A	14.25	15	15.75	25.0	9.0	600	0.25	0.5	11.4	100
1SMA5930	930A	15.20	16	16.80	23.4	10.0	600	0.25	0.5	12.2	94
1SMA5931	931A	17.10	18	18.90	20.8	12.0	650	0.25	0.5	13.7	83
1SMA5932	932A	19.00	20	21.00	18.7	14.0	650	0.25	0.5	15.2	75
1SMA5933	933A	20.90	22	23.10	17.0	17.5	650	0.25	0.5	16.7	68
1SMA5934	934A	22.80	24	25.20	15.6	19.0	700	0.25	0.5	18.2	63
1SMA5935	935A	25.65	27	28.35	13.9	23.0	700	0.25	0.5	20.6	56
1SMA5936	936A	28.50	30	31.50	12.5	26.0	750	0.25	0.5	22.8	50
1SMA5937	937A	31.35	33	34.65	11.4	33.0	800	0.25	0.5	25.1	45
1SMA5938	938A	34.20	36	37.80	10.4	38.0	850	0.25	0.5	27.4	42
1SMA5939	939A	37.05	39	40.95	9.6	45.0	900	0.25	0.5	29.7	38
1SMA5940	940A	40.85	43	45.15	8.7	53.0	950	0.25	0.5	32.7	35
1SMA5941	941A	44.65	47	49.35	8.0	67.0	1000	0.25	0.5	35.8	32
1SMA5942	942A	48.45	51	53.55	7.3	70.0	1100	0.25	0.5	38.8	29
1SMA5943	943A	53.20	56	58.80	6.7	86.0	1300	0.25	0.5	42.6	27
1SMA5944	944A	58.90	62	65.10	6.0	100.0	1500	0.25	0.5	47.1	24
1SMA5945	945A	64.60	68	71.40	5.5	120.0	1700	0.25	0.5	51.7	22
1SMA5946	946A	71.25	75	78.75	5.0	140.0	2000	0.25	0.5	56.0	20
1SMA5947	947A	77.90	82	86.10	4.6	160.0	2500	0.25	0.5	62.2	18
1SMA5948	948A	86.45	91	95.55	4.1	200.0	3000	0.25	0.5	69.2	16
1SMA5949	949A	95.00	100	105.00	3.7	250.0	3100	0.25	0.5	76.0	15
1SMA5950	950A	104.50	110	115.50	3.4	300.0	4000	0.25	0.5	83.6	13
1SMA5951	951A	114.00	120	126.00	3.1	360.0	4500	0.25	0.5	91.2	12
1SMA5952	952A	123.50	130	136.50	2.9	450.0	5000	0.25	0.5	98.8	11
1SMA5953	953A	142.50	150	157.50	2.5	600.0	6000	0.25	0.5	114.0	10
1SMA5954	954A	152.00	160	168.00	2.3	700.0	6500	0.25	0.5	121.6	9
1SMA5955	955A	171.00	180	189.00	2.1	900.0	7000	0.25	0.5	136.8	8
1SMA5956	956A	190.00	200	210.00	1.9	1200.0	8000	0.25	0.5	152.0	7

Notes:

1. Tolerance and Voltage Regulation Designation. The type number listed indicates a tolerance of ±5%
2. Vz limits are to be guaranteed at thermal equilibrium

FIG. 1 STEADY STATE POWER DERATING

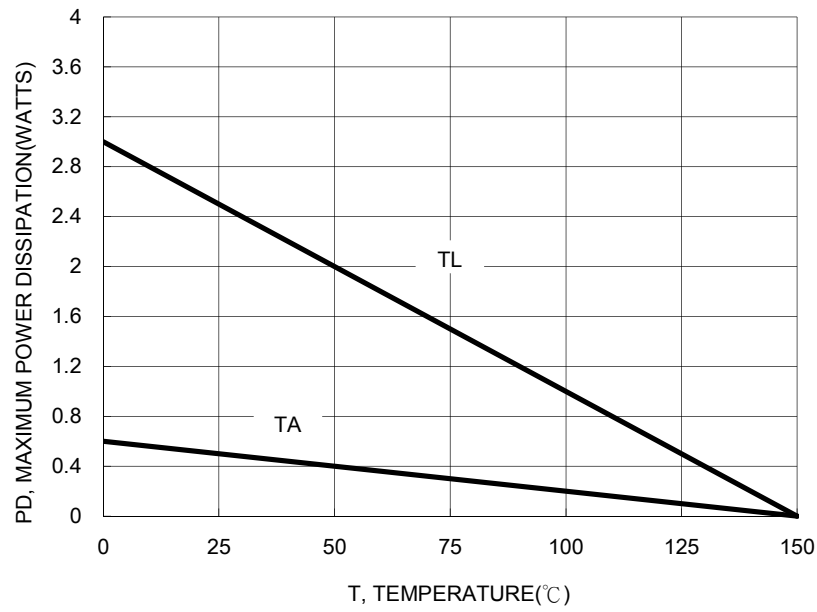


FIG. 2 $V_z = 12$ THRU 68 VOLTS

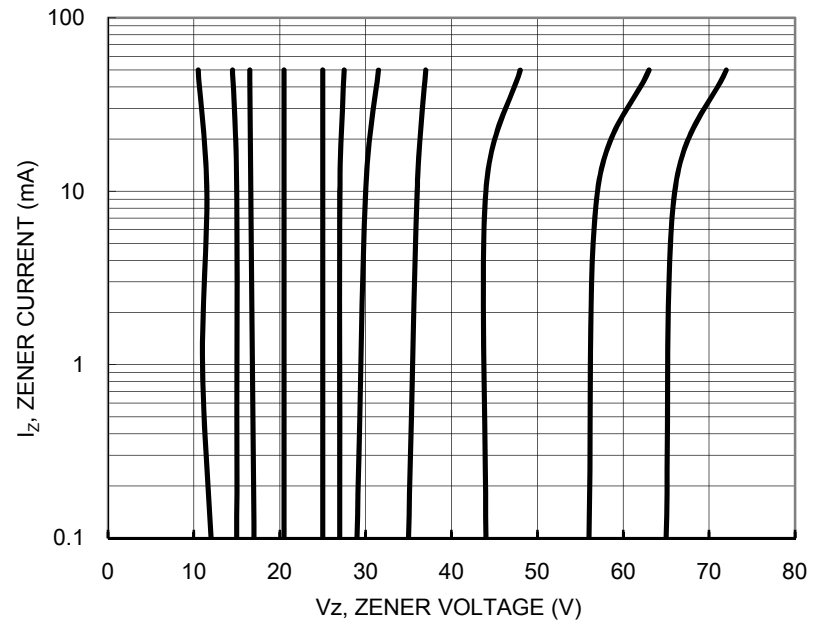


FIG.3 ZENER VOLTAGE 12 TO 68 VOLTS

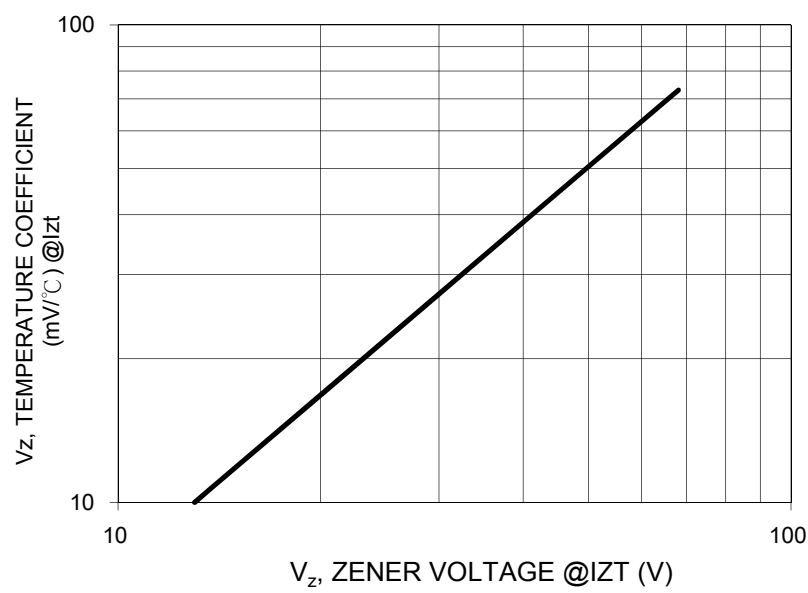


FIG. 4 EFFECT OF ZENER VOLTAGE

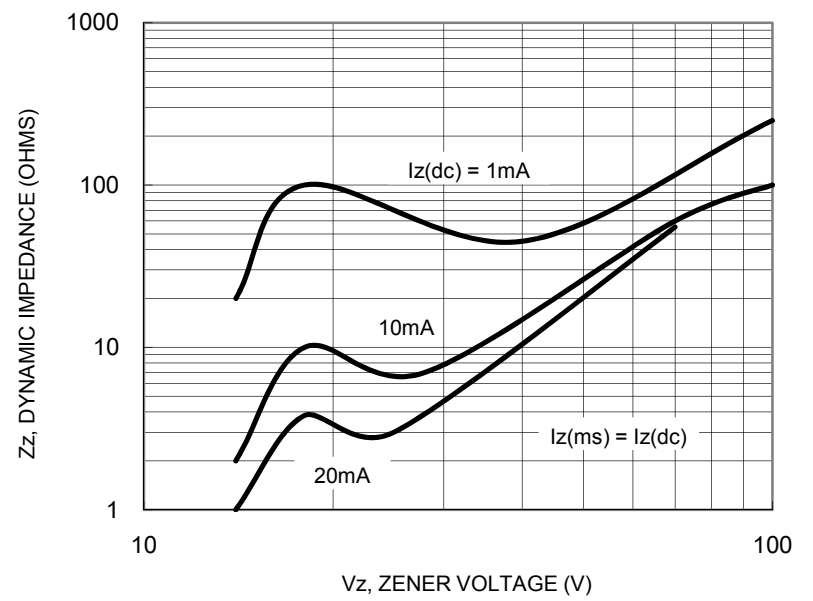


FIG.5 CAPACITANCE CURVE

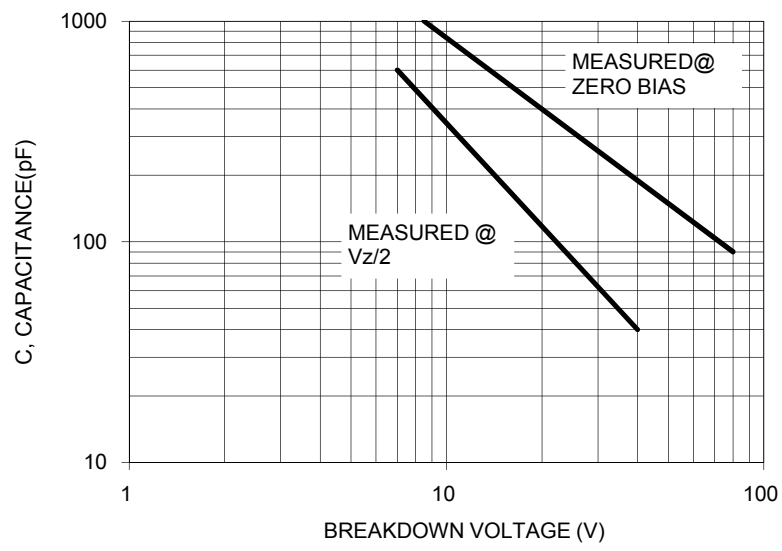


FIG. 6 TYPICAL PULSE RATING CURVE

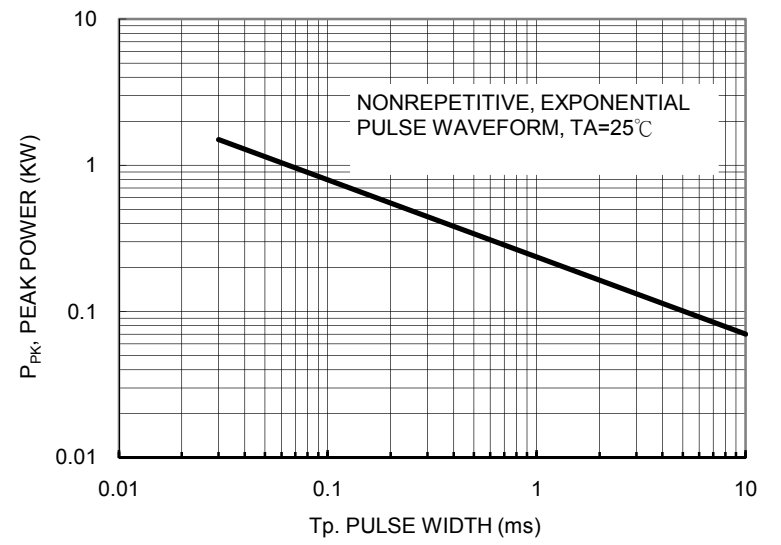


FIG. 7 PULSE WAVEFORM

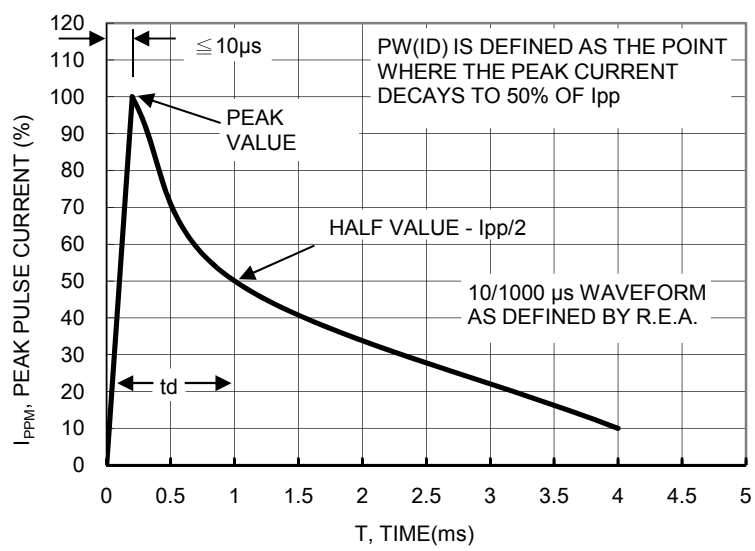
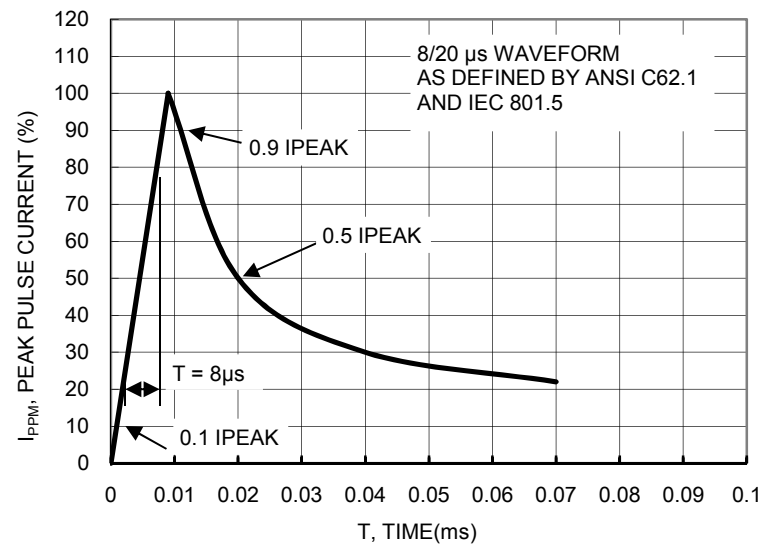
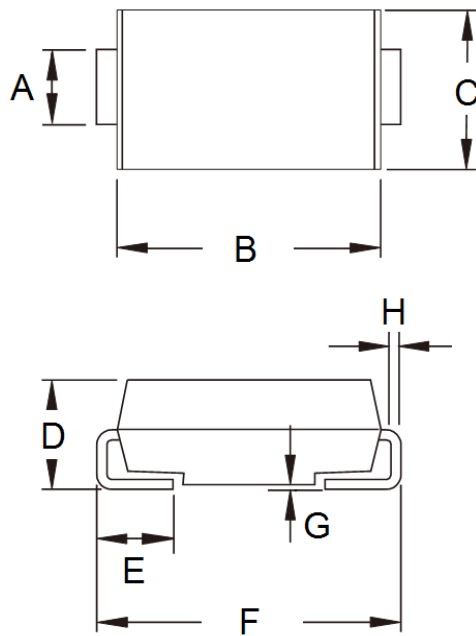


FIG. 8 PULSE WAVEFORM

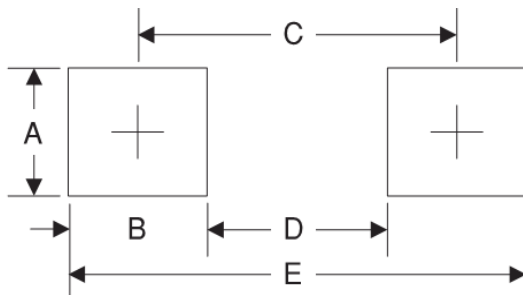


PACKAGE OUTLINE DIMENSIONS



DIM.	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	1.27	1.58	0.050	0.062
B	4.06	4.60	0.160	0.181
C	2.29	2.83	0.090	0.111
D	1.99	2.50	0.078	0.098
E	0.90	1.41	0.035	0.056
F	4.95	5.33	0.195	0.210
G	0.10	0.20	0.004	0.008
H	0.15	0.31	0.006	0.012

SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
A	1.68	0.066
B	1.52	0.060
C	3.93	0.155
D	2.41	0.095
E	5.45	0.215

MARKING DIAGRAM



P/N = Device Marking Code
G = Green Compound
YW = Date Code
F = Factory Code

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<u>1SMA5927</u>	<u>1SMA5939</u>	<u>1SMA5934</u>	<u>1SMA5926</u>	<u>1SMA5942</u>	<u>1SMA5943</u>	<u>1SMA5936</u>	<u>1SMA5956HR2G</u>
<u>1SMA5937HR2G</u>	<u>1SMA5947HR3G</u>	<u>1SMA5932HR3G</u>	<u>1SMA5939HR2G</u>	<u>1SMA5947HR2G</u>	<u>1SMA5941HR2G</u>		
<u>1SMA5940HR2G</u>	<u>1SMA5934HR2G</u>	<u>1SMA5935HR2G</u>	<u>1SMA5955HR2G</u>	<u>1SMA5929HR2G</u>	<u>1SMA5945HR2G</u>		
<u>1SMA5929HR3G</u>	<u>1SMA5936HR2G</u>	<u>1SMA5952HR2G</u>	<u>1SMA5955HR3G</u>	<u>1SMA5931HR3G</u>	<u>1SMA5930HR2G</u>		
<u>1SMA5928HR2G</u>	<u>1SMA5928HR3G</u>	<u>1SMA5943HR3G</u>	<u>1SMA5944HR3G</u>	<u>1SMA5937HR3G</u>	<u>1SMA5931HR2G</u>		
<u>1SMA5946HR3G</u>	<u>1SMA5948HR3G</u>	<u>1SMA5945HR3G</u>	<u>1SMA5954HR2G</u>	<u>1SMA5949HR3G</u>	<u>1SMA5950HR3G</u>		
<u>1SMA5942HR2G</u>	<u>1SMA5944HR2G</u>	<u>1SMA5936HR3G</u>	<u>1SMA5951HR2G</u>	<u>1SMA5926HR2G</u>	<u>1SMA5941HR3G</u>		
<u>1SMA5954HR3G</u>	<u>1SMA5927HR2G</u>	<u>1SMA5949HR2G</u>	<u>1SMA5943HR2G</u>	<u>1SMA5938HR2G</u>	<u>1SMA5930HR3G</u>		
<u>1SMA5940HR3G</u>	<u>1SMA5932HR2G</u>	<u>1SMA5935HR3G</u>	<u>1SMA5934HR3G</u>	<u>1SMA5953HR3G</u>	<u>1SMA5956HR3G</u>		
<u>1SMA5952HR3G</u>	<u>1SMA5948HR2G</u>	<u>1SMA5926HR3G</u>	<u>1SMA5927HR3G</u>	<u>1SMA5939HR3G</u>	<u>1SMA5951HR3G</u>		
<u>1SMA5953HR2G</u>	<u>1SMA5942HR3G</u>	<u>1SMA5950HR2G</u>	<u>1SMA5933HR2G</u>	<u>1SMA5933HR3G</u>	<u>1SMA5946HR2G</u>		
<u>1SMA5938HR3G</u>	<u>1SMA5938HM2G</u>	<u>1SMA5941HM2G</u>	<u>1SMA5954HM2G</u>	<u>1SMA5928HM2G</u>	<u>1SMA5940HM2G</u>		
<u>1SMA5932HM2G</u>	<u>1SMA5949HM2G</u>	<u>1SMA5930HM2G</u>	<u>1SMA5950HM2G</u>	<u>1SMA5936HM2G</u>	<u>1SMA5952HM2G</u>		
<u>1SMA5948HM2G</u>	<u>1SMA5942HM2G</u>	<u>1SMA5953HM2G</u>	<u>1SMA5939HM2G</u>	<u>1SMA5929HM2G</u>	<u>1SMA5935HM2G</u>		
<u>1SMA5926HM2G</u>	<u>1SMA5946HM2G</u>	<u>1SMA5934HM2G</u>	<u>1SMA5944HM2G</u>	<u>1SMA5937HM2G</u>	<u>1SMA5943HM2G</u>		
<u>1SMA5956HM2G</u>	<u>1SMA5927HM2G</u>	<u>1SMA5947HM2G</u>	<u>1SMA5933HM2G</u>	<u>1SMA5951HM2G</u>	<u>1SMA5931HM2G</u>		
<u>1SMA5945HM2G</u>	<u>1SMA5955HM2G</u>						