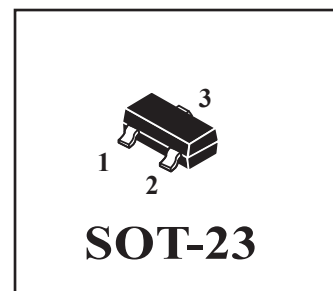
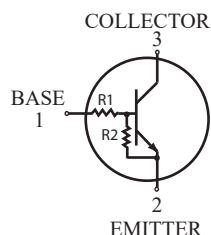


Bias Resistor Transistor NPN Silicon

Feature:

- Simplifies circuit design
- Reduces board space and component count
- S- prefix for automotive and other applications requiring unique site and control change requirements; AEC-Q101 qualified and PPAP capable.



Maximum Ratings(Ta = 25°C)

Parameter	Symbol	Limits	Unit
Collector-Emitter Voltage	VCEO	50	V
Collector-Base Voltage	VCBO	50	V
Collector Current — Continuous	IC	100	mA

Thermal Characteristics

Parameter	Symbol	Limits	Unit
Total Device Dissipation, FR-5 Board (Note 1) @ TA = 25°C Derate above 25°C	PD	246 1.5	mW mW/°C
Thermal Resistance, Junction-to-Ambient(Note 1)	RθJA	508	°C/W
Junction and Storage temperature	TJ,Tstg	-55~+150	°C

1. FR-5 @ Minimum Pad.

Device Marking and Resistor Values

Device	Marking	R1(k)	R2(k)	V _{IN} (V)
S-MMUN2211-V	A8A	10	10	-10~+40

Electrical Characteristics (Ta= 25° C)

OFF CHARACTERISTICS

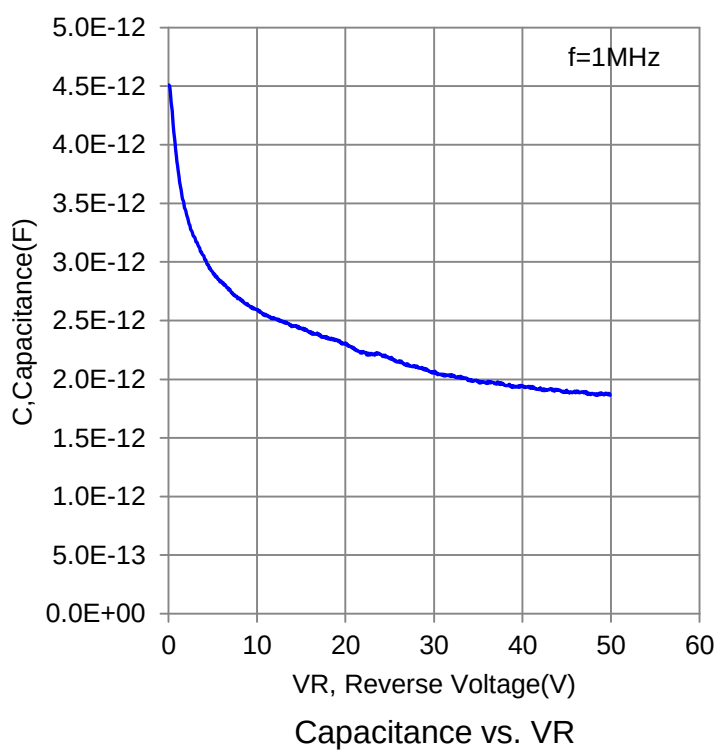
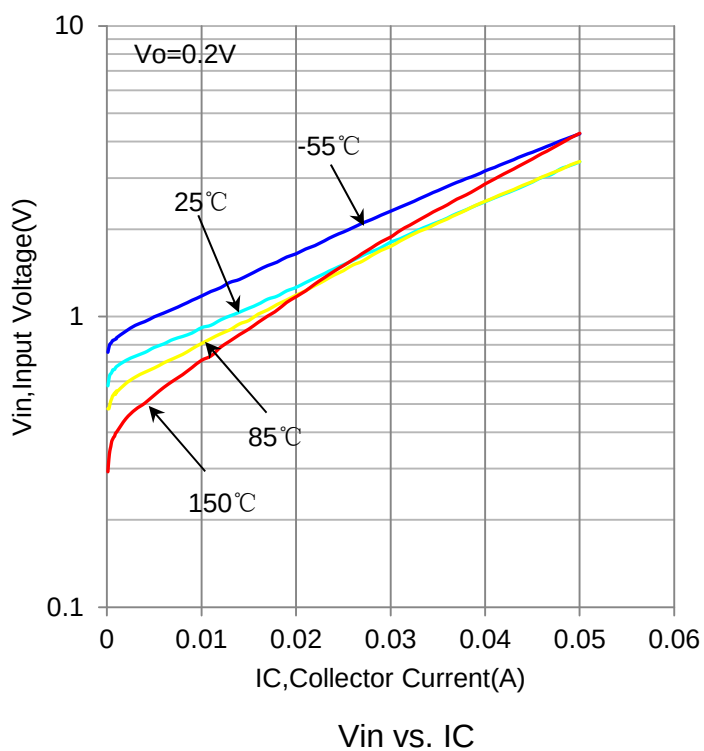
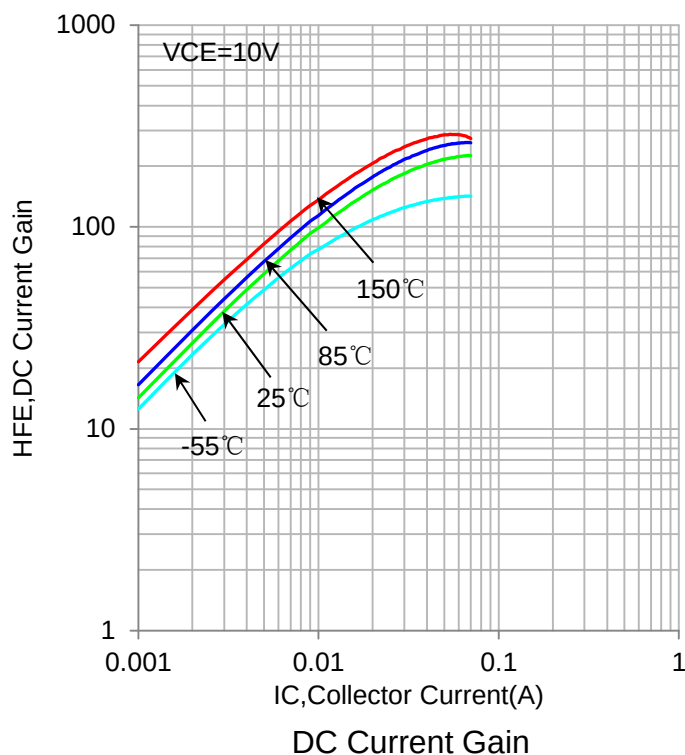
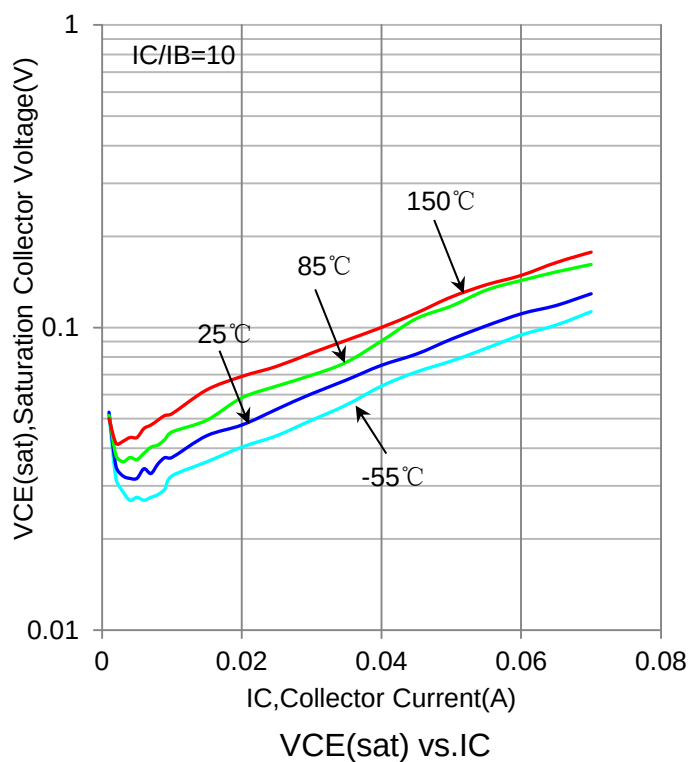
Characteristic	Symbol	Min.	Typ.	Max.	Unit
Collector–Emitter Breakdown Voltage (IC = 2.0 mA, IB = 0)	VBR(CEO)	50	-	-	V
Collector–Base Breakdown Voltage (IC = 10 μ A, IE = 0)	VBR(CBO)	50	-	-	V
Collector-Base Cutoff Current (VCB = 50 V, IE = 0)	ICBO	-	-	100	nA
Collector-Emitter Cutoff Current (VCE = 50 V, IB = 0)	ICEO	-	-	500	nA
Emitter-Base Cutoff Current (VEB = 6.0 V, IC = 0)	IEBO	-	-	0.5	mA

ON CHARACTERISTICS (Note 2.)

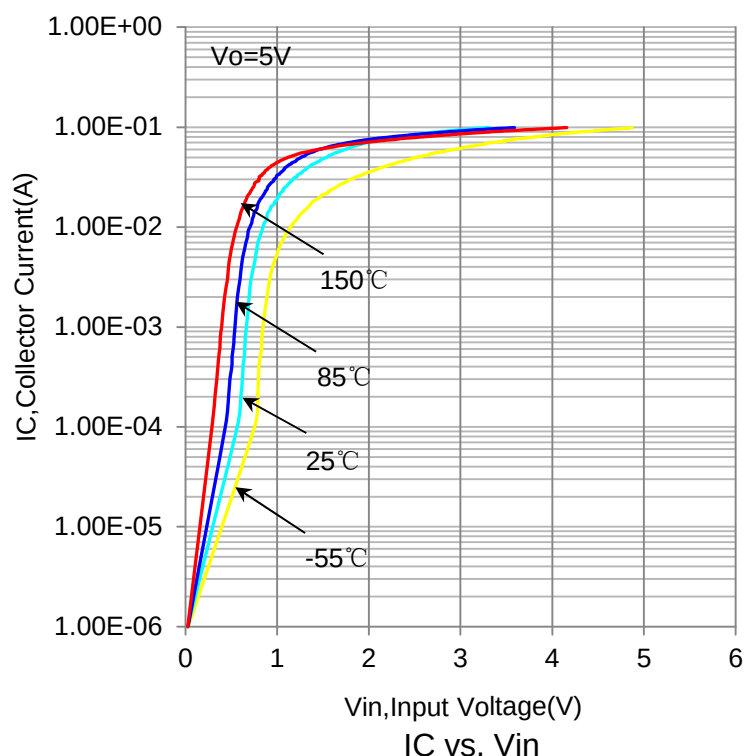
DC Current Gain (IC = 5.0 mA, VCE = 10 V)	HFE	35	60	-	
Collector–Emitter Saturation Voltage (IC = 10 mA, IB = 0.3 mA)	VCE(sat)	-	-	0.25	V
Input Voltage(on) (VCE = 0.3V, IC = 10mA)	VIN(on)	3.0	-	-	V
Input Voltage(off) (VCE = 5V, IC = 100 μ A)	VIN(off)	-	-	0.5	V
Output Voltage (on) (VCC = 5.0 V, VB = 2.5 V, RL = 1.0K Ω)	VOL	-	-	0.2	V
Output Voltage (on) (VCC = 5.0 V, VB = 0.5 V, RL = 1.0K Ω)	VOH	4.9	-	-	V
Transition Frequency (VCE = 10V, IE = 5mA, f = 100MHz)	fT	-	250	-	MHz
Input Resistor	R1	7	10	13	K Ω
Resistor Ratio	R1/R2	0.8	1	1.2	

2. Pulse Test: Pulse Width < 300 μ s, Duty Cycle < 2.0%

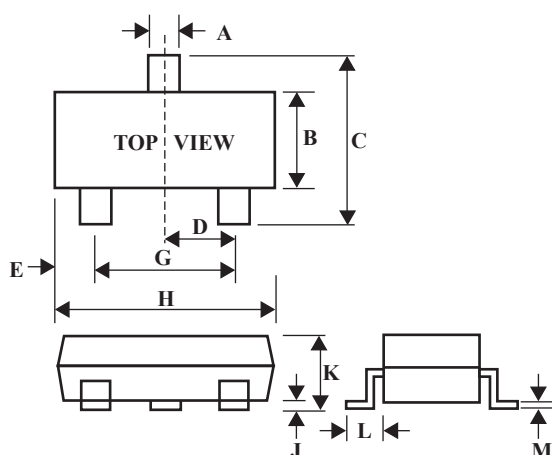
Electrical Characteristics Curves



Electrical Characteristics Curves(Con.)



SOT-23 Package Outline Dimension



SOT-23		
Dim	Min	Max
A	0.35	0.51
B	1.19	1.40
C	2.10	2.64
D	0.85	1.05
E	0.46	1.00
G	1.70	2.10
H	2.70	3.10
J	0.01	0.13
K	0.89	1.12
L	0.30	0.69
M	0.076	0.25