

Low Voltage Reset IC

Features

- Monitor Supply Voltages from 0.9V to 1.8V
- $\pm 2\%$ Reset Threshold Accuracy
- Capacitor-Adjustable Reset Timeout Period
 $t_{RP} (ms) \approx 2.7 \times C_D (nF)$ at $V_{CC}=3.3V$
- Low Quiescent Current : $10\mu A$ at $V_{CC}=3.3V$
- Available in three RESET Output Options
 Push-Pull RESET Output (G682L)
 Push-Pull RESET Output (G682H)
 Open-Drain RESET (G683L)
- Programmable Reset Threshold Application (G68__09T_)
- Guaranteed Reset Valid to $V_{CC} = 1V$
- Power-Supply Transient Immunity
- SOT-23-5, SC-70-5, DFN1.6X1.6-6 and ADFN1.5X1.5-6 Packages

Applications

- Computers
- Controllers
- Intelligent Instruments
- Critical μP and μC Power Monitoring
- Portable/Battery-Powered Equipment
- Telecom/Networking Equipment

General Description

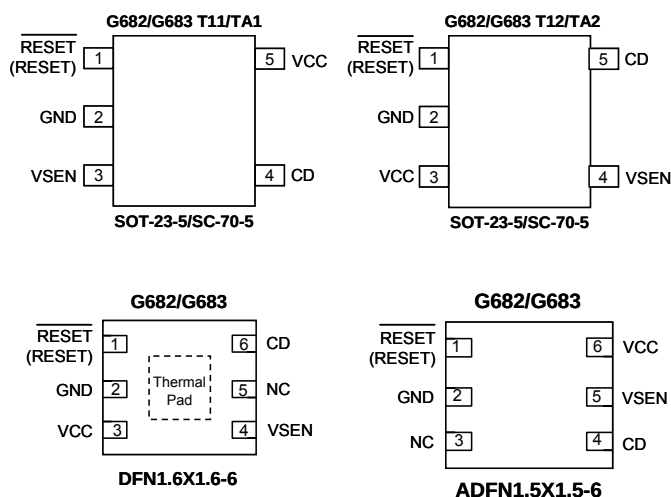
The G682/G683 microprocessor (μP) supervisory circuits monitor system voltages in μP and digital systems. They provide excellent circuit reliability at low cost by eliminating external components.

Since the sense pin is separated from power supply, it allows the IC to monitor added power supply. Using the IC with the sense pin separated from power supply enables output to maintain the state of detection even when voltage of the monitored power supply drops to 0V. The VSEN pin of G68__09T_ is high impedance and can be used for application of reset threshold programming.

Moreover, with the built-in delay circuit, connecting the delay capacitance pin to the capacitor enables the IC to provide an arbitrary release delay time.

All of these devices are offered in SOT-23-5, SC-70-5, DFN1.6X1.6-6 and ADFN1.5X1.5-6 packages.

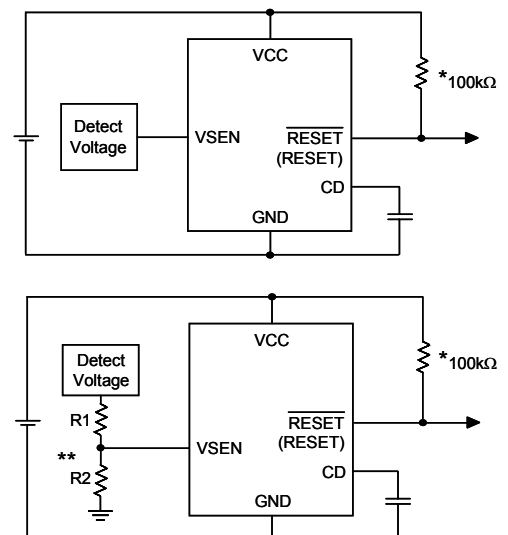
Pin Configuration



Note: Recommend connecting the Thermal Pad to the Ground for excellent power dissipation.

() is for G682H

Typical Application Circuit



*The 100k Ω pull up resistor is only for G683L

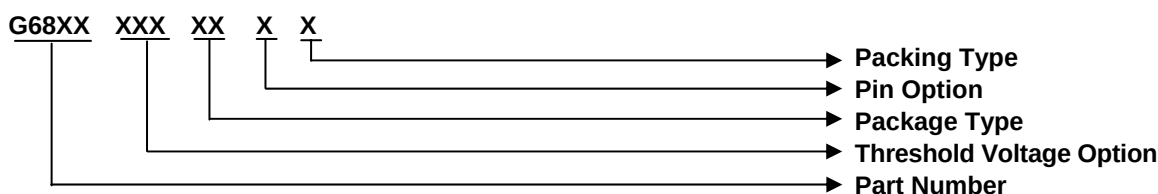
**Adjustable reset threshold voltage is only for G68__09T_.

$$V_{th} = 0.788 \times \frac{R1+R2}{R2}$$

Ordering Information

ORDER NUMBER	TEMP. RANGE	OUTPUT TYPE	PACKAGE (Green)
G682LxxxTxxU	-40°C ~ +105°C	Push-Pull Active Low	SOT-23-5/SC-70-5
G682HxxxTxxU	-40°C ~ +105°C	Push-Pull Active High	SOT-23-5/SC-70-5
G683LxxxTxxU	-40°C ~ +105°C	Open Drain	SOT-23-5/SC-70-5
G682LxxxQL1U	-40°C ~ +105°C	Push-Pull Active Low	DFN1.6X1.6-6
G682HxxxQL1U	-40°C ~ +105°C	Push-Pull Active High	DFN1.6X1.6-6
G683LxxxQL1U	-40°C ~ +105°C	Open Drain	DFN1.6X1.6-6
G682LxxxA31U	-40°C ~ +105°C	Push-Pull Active Low	ADFN1.5X1.5-6
G682HxxxA31U	-40°C ~ +105°C	Push-Pull Active High	ADFN1.5X1.5-6
G683Lxxx A31U	-40°C ~ +105°C	Open Drain	ADFN1.5X1.5-6

Order Number Identification



PART NUMBER

G682L : Push-Pull Active Low Output
 G682H : Push-Pull Active High Output
 G683L : Open-Drain Output

THRESHOLD VOLTAGE OPTION

xxx specifies the threshold voltage.
 e.g. 09T denotes the 0.788V threshold voltage.
 09S denotes the 0.833V threshold voltage.
 T:87.5%
 S:92.5%

PACKAGE TYPE

T1 : SOT-23-5
 TA : SC-70-5
 QL: DFN1.6X1.6-6
 A3: ADFN1.5X1.5-6

PACKING TYPE

U : Tape & Reel

PIN OPTION

	1	2	3	4	5	6
SOT-23-5/SC-70-5						
1 : $\overline{\text{RESET}}$ (RESET)	GND	VSEN	CD	VCC	---	---
2 : $\overline{\text{RESET}}$ (RESET)	GND	VCC	VSEN	CD	---	---
DFN1.6X1.6-6						
1 : $\overline{\text{RESET}}$ (RESET)	GND	VCC	VSEN	NC	CD	---
ADFN1.5X1.5-6						
1 : $\overline{\text{RESET}}$ (RESET)	GND	NC	CD	VSEN	VCC	---

*RESET for G682H

Selector Guide

ORDER NUMBER	RESET THRESHOLD (V)	OUTPUT TYPE	MARKING	PACKAGE (Green)
G682L09TT11U	0.788(0.9*87.5%)	Push-Pull $\overline{\text{RESET}}$	62AAx	SOT-23-5
G682L09ST11U	0.833(0.9*92.5%)	Push-Pull $\overline{\text{RESET}}$	62ABx	SOT-23-5
G682L12TT11U	1.050(1.2*87.5%)	Push-Pull $\overline{\text{RESET}}$	62ACx	SOT-23-5
G682L12ST11U	1.110(1.2*92.5%)	Push-Pull $\overline{\text{RESET}}$	62ADx	SOT-23-5
G682L15TT11U	1.313(1.5*87.5%)	Push-Pull $\overline{\text{RESET}}$	62AEx	SOT-23-5
G682L15ST11U	1.388(1.5*92.5%)	Push-Pull $\overline{\text{RESET}}$	62AFx	SOT-23-5
G682L18TT11U	1.575(1.8*87.5%)	Push-Pull $\overline{\text{RESET}}$	62AGx	SOT-23-5
G682L18ST11U	1.665(1.8*92.5%)	Push-Pull $\overline{\text{RESET}}$	62AHx	SOT-23-5
G682H09TT11U	0.788(0.9*87.5%)	Push-Pull RESET	62Aix	SOT-23-5
G682H09ST11U	0.833(0.9*92.5%)	Push-Pull RESET	62Aix	SOT-23-5
G682H12TT11U	1.050(1.2*87.5%)	Push-Pull RESET	62AKx	SOT-23-5
G682H12ST11U	1.110(1.2*92.5%)	Push-Pull RESET	62ALx	SOT-23-5
G682H15TT11U	1.313(1.5*87.5%)	Push-Pull RESET	62AMx	SOT-23-5
G682H15ST11U	1.388(1.5*92.5%)	Push-Pull RESET	62ANx	SOT-23-5
G682H18TT11U	1.575(1.8*87.5%)	Push-Pull RESET	62AOx	SOT-23-5
G682H18ST11U	1.665(1.8*92.5%)	Push-Pull RESET	62APx	SOT-23-5
G683L09TT11U	0.788(0.9*87.5%)	Open-Drain $\overline{\text{RESET}}$	63AAx	SOT-23-5
G683L09ST11U	0.833(0.9*92.5%)	Open-Drain $\overline{\text{RESET}}$	63ABx	SOT-23-5
G683L12TT11U	1.050(1.2*87.5%)	Open-Drain $\overline{\text{RESET}}$	63ACx	SOT-23-5
G683L12ST11U	1.110(1.2*92.5%)	Open-Drain $\overline{\text{RESET}}$	63ADx	SOT-23-5
G683L15TT11U	1.313(1.5*87.5%)	Open-Drain $\overline{\text{RESET}}$	63AEx	SOT-23-5
G683L15ST11U	1.388(1.5*92.5%)	Open-Drain $\overline{\text{RESET}}$	63AFx	SOT-23-5
G683L18TT11U	1.575(1.8*87.5%)	Open-Drain $\overline{\text{RESET}}$	63AGx	SOT-23-5
G683L18ST11U	1.665(1.8*92.5%)	Open-Drain $\overline{\text{RESET}}$	63AHx	SOT-23-5

Note: T: 87.5% S:92.5%

T1: SOT-23-5

1: Bonding Code

U: Tape & Reel

Selector Guide

ORDER NUMBER	RESET THRESHOLD (V)	OUTPUT TYPE	MARKING	PACKAGE (Green)
G682L09TT12U	0.788(0.9*87.5%)	Push-Pull $\overline{\text{RESET}}$	62BAx	SOT-23-5
G682L09ST12U	0.833(0.9*92.5%)	Push-Pull $\overline{\text{RESET}}$	62BBx	SOT-23-5
G682L12TT12U	1.050(1.2*87.5%)	Push-Pull $\overline{\text{RESET}}$	62BCx	SOT-23-5
G682L12ST12U	1.110(1.2*92.5%)	Push-Pull $\overline{\text{RESET}}$	62BDx	SOT-23-5
G682L15TT12U	1.313(1.5*87.5%)	Push-Pull $\overline{\text{RESET}}$	62BEx	SOT-23-5
G682L15ST12U	1.388(1.5*92.5%)	Push-Pull $\overline{\text{RESET}}$	62BFx	SOT-23-5
G682L18TT12U	1.575(1.8*87.5%)	Push-Pull $\overline{\text{RESET}}$	62BGx	SOT-23-5
G682L18ST12U	1.665(1.8*92.5%)	Push-Pull $\overline{\text{RESET}}$	62BHx	SOT-23-5
G682H09TT12U	0.788(0.9*87.5%)	Push-Pull RESET	62Blx	SOT-23-5
G682H09ST12U	0.833(0.9*92.5%)	Push-Pull RESET	62Bjx	SOT-23-5
G682H12TT12U	1.050(1.2*87.5%)	Push-Pull RESET	62BKx	SOT-23-5
G682H12ST12U	1.110(1.2*92.5%)	Push-Pull RESET	62BLx	SOT-23-5
G682H15TT12U	1.313(1.5*87.5%)	Push-Pull RESET	62BMx	SOT-23-5
G682H15ST12U	1.388(1.5*92.5%)	Push-Pull RESET	62BNx	SOT-23-5
G682H18TT12U	1.575(1.8*87.5%)	Push-Pull RESET	62BOx	SOT-23-5
G682H18ST12U	1.665(1.8*92.5%)	Push-Pull RESET	62BPx	SOT-23-5
G683L09TT12U	0.788(0.9*87.5%)	Open-Drain $\overline{\text{RESET}}$	63BAx	SOT-23-5
G683L09ST12U	0.833(0.9*92.5%)	Open-Drain $\overline{\text{RESET}}$	63BBx	SOT-23-5
G683L12TT12U	1.050(1.2*87.5%)	Open-Drain $\overline{\text{RESET}}$	63BCx	SOT-23-5
G683L12ST12U	1.110(1.2*92.5%)	Open-Drain $\overline{\text{RESET}}$	63BDx	SOT-23-5
G683L15TT12U	1.313(1.5*87.5%)	Open-Drain $\overline{\text{RESET}}$	63BEx	SOT-23-5
G683L15ST12U	1.388(1.5*92.5%)	Open-Drain $\overline{\text{RESET}}$	63BFx	SOT-23-5
G683L18TT12U	1.575(1.8*87.5%)	Open-Drain $\overline{\text{RESET}}$	63BGx	SOT-23-5
G683L18ST12U	1.665(1.8*92.5%)	Open-Drain $\overline{\text{RESET}}$	63BHx	SOT-23-5

Note: T: 87.5% S:92.5%

T1: SOT-23-5

2: Bonding Code

U: Tape & Reel

Selector Guide

ORDER NUMBER	RESET THRESHOLD (V)	OUTPUT TYPE	MARKING	PACKAGE (Green)
G682L09TTA1U	0.788(0.9*87.5%)	Push-Pull $\overline{\text{RESET}}$	6AAx	SC-70-5
G682L09STA1U	0.833(0.9*92.5%)	Push-Pull $\overline{\text{RESET}}$	6ABx	SC-70-5
G682L12TTA1U	1.050(1.2*87.5%)	Push-Pull $\overline{\text{RESET}}$	6ACx	SC-70-5
G682L12STA1U	1.110(1.2*92.5%)	Push-Pull $\overline{\text{RESET}}$	6ADx	SC-70-5
G682L15TTA1U	1.313(1.5*87.5%)	Push-Pull $\overline{\text{RESET}}$	6AEx	SC-70-5
G682L15STA1U	1.388(1.5*92.5%)	Push-Pull $\overline{\text{RESET}}$	6AFx	SC-70-5
G682L18TTA1U	1.575(1.8*87.5%)	Push-Pull $\overline{\text{RESET}}$	6AGx	SC-70-5
G682L18STA1U	1.665(1.8*92.5%)	Push-Pull $\overline{\text{RESET}}$	6AHx	SC-70-5
G682H09TTA1U	0.788(0.9*87.5%)	Push-Pull RESET	6Aix	SC-70-5
G682H09STA1U	0.833(0.9*92.5%)	Push-Pull RESET	6AJx	SC-70-5
G682H12TTA1U	1.050(1.2*87.5%)	Push-Pull RESET	6AKx	SC-70-5
G682H12STA1U	1.110(1.2*92.5%)	Push-Pull RESET	6ALx	SC-70-5
G682H15TTA1U	1.313(1.5*87.5%)	Push-Pull RESET	6AMx	SC-70-5
G682H15STA1U	1.388(1.5*92.5%)	Push-Pull RESET	6ANx	SC-70-5
G682H18TTA1U	1.575(1.8*87.5%)	Push-Pull RESET	6AOx	SC-70-5
G682H18STA1U	1.665(1.8*92.5%)	Push-Pull RESET	6APx	SC-70-5
G683L09TTA1U	0.788(0.9*87.5%)	Open-Drain $\overline{\text{RESET}}$	63Ax	SC-70-5
G683L09STA1U	0.833(0.9*92.5%)	Open-Drain $\overline{\text{RESET}}$	63Bx	SC-70-5
G683L12TTA1U	1.050(1.2*87.5%)	Open-Drain $\overline{\text{RESET}}$	63Cx	SC-70-5
G683L12STA1U	1.110(1.2*92.5%)	Open-Drain $\overline{\text{RESET}}$	63Dx	SC-70-5
G683L15TTA1U	1.313(1.5*87.5%)	Open-Drain $\overline{\text{RESET}}$	63Ex	SC-70-5
G683L15STA1U	1.388(1.5*92.5%)	Open-Drain $\overline{\text{RESET}}$	63Fx	SC-70-5
G683L18TTA1U	1.575(1.8*87.5%)	Open-Drain $\overline{\text{RESET}}$	63Gx	SC-70-5
G683L18STA1U	1.665(1.8*92.5%)	Open-Drain $\overline{\text{RESET}}$	63Hx	SC-70-5

Note: T: 87.5% S:92.5%

TA: SC-70-5

1: Bonding Code

U: Tape & Reel

Selector Guide

ORDER NUMBER	RESET THRESHOLD (V)	OUTPUT TYPE	MARKING	PACKAGE (Green)
G682L09TTA2U	0.788(0.9*87.5%)	Push-Pull $\overline{\text{RESET}}$	6BAx	SC-70-5
G682L09STA2U	0.833(0.9*92.5%)	Push-Pull $\overline{\text{RESET}}$	6BBx	SC-70-5
G682L12TTA2U	1.050(1.2*87.5%)	Push-Pull $\overline{\text{RESET}}$	6BCx	SC-70-5
G682L12STA2U	1.110(1.2*92.5%)	Push-Pull $\overline{\text{RESET}}$	6BDx	SC-70-5
G682L15TTA2U	1.313(1.5*87.5%)	Push-Pull $\overline{\text{RESET}}$	6BEx	SC-70-5
G682L15STA2U	1.388(1.5*92.5%)	Push-Pull $\overline{\text{RESET}}$	6BFx	SC-70-5
G682L18TTA2U	1.575(1.8*87.5%)	Push-Pull $\overline{\text{RESET}}$	6BGx	SC-70-5
G682L18STA2U	1.665(1.8*92.5%)	Push-Pull $\overline{\text{RESET}}$	6BHx	SC-70-5
G682H09TTA2U	0.788(0.9*87.5%)	Push-Pull RESET	6BIx	SC-70-5
G682H09STA2U	0.833(0.9*92.5%)	Push-Pull RESET	6BJx	SC-70-5
G682H12TTA2U	1.050(1.2*87.5%)	Push-Pull RESET	6BKx	SC-70-5
G682H12STA2U	1.110(1.2*92.5%)	Push-Pull RESET	6BLx	SC-70-5
G682H15TTA2U	1.313(1.5*87.5%)	Push-Pull RESET	6BMx	SC-70-5
G682H15STA2U	1.388(1.5*92.5%)	Push-Pull RESET	6BNx	SC-70-5
G682H18TTA2U	1.575(1.8*87.5%)	Push-Pull RESET	6BOx	SC-70-5
G682H18STA2U	1.665(1.8*92.5%)	Push-Pull RESET	6BPx	SC-70-5
G683L09TTA2U	0.788(0.9*87.5%)	Open-Drain $\overline{\text{RESET}}$	63Ix	SC-70-5
G683L09STA2U	0.833(0.9*92.5%)	Open-Drain $\overline{\text{RESET}}$	63Jx	SC-70-5
G683L12TTA2U	1.050(1.2*87.5%)	Open-Drain $\overline{\text{RESET}}$	63Kx	SC-70-5
G683L12STA2U	1.110(1.2*92.5%)	Open-Drain $\overline{\text{RESET}}$	63Lx	SC-70-5
G683L15TTA2U	1.313(1.5*87.5%)	Open-Drain $\overline{\text{RESET}}$	63Mx	SC-70-5
G683L15STA2U	1.388(1.5*92.5%)	Open-Drain $\overline{\text{RESET}}$	63Nx	SC-70-5
G683L18TTA2U	1.575(1.8*87.5%)	Open-Drain $\overline{\text{RESET}}$	63Ox	SC-70-5
G683L18STA2U	1.665(1.8*92.5%)	Open-Drain $\overline{\text{RESET}}$	63Px	SC-70-5

Note: T: 87.5% S:92.5%

TA: SC-70-5

2: Bonding Code

U: Tape & Reel

Selector Guide

ORDER NUMBER	RESET THRESHOLD (V)	OUTPUT TYPE	MARKING	PACKAGE (Green)
G682L09TQL1U	0.788(0.9*87.5%)	Push-Pull $\overline{\text{RESET}}$	682 ATx	DFN1.6X1.6-6
G682L09SQL1U	0.833(0.9*92.5%)	Push-Pull $\overline{\text{RESET}}$	682 ASx	DFN1.6X1.6-6
G682L12TQL1U	1.050(1.2*87.5%)	Push-Pull $\overline{\text{RESET}}$	682 BTx	DFN1.6X1.6-6
G682L12SQL1U	1.110(1.2*92.5%)	Push-Pull $\overline{\text{RESET}}$	682 BSx	DFN1.6X1.6-6
G682L15TQL1U	1.313(1.5*87.5%)	Push-Pull $\overline{\text{RESET}}$	682 CTx	DFN1.6X1.6-6
G682L15SQL1U	1.388(1.5*92.5%)	Push-Pull $\overline{\text{RESET}}$	682 CSx	DFN1.6X1.6-6
G682L18TQL1U	1.575(1.8*87.5%)	Push-Pull $\overline{\text{RESET}}$	682 DTx	DFN1.6X1.6-6
G682L18SQL1U	1.665(1.8*92.5%)	Push-Pull $\overline{\text{RESET}}$	682 DSx	DFN1.6X1.6-6
G682H09TQL1U	0.788(0.9*87.5%)	Push-Pull RESET	682 ETx	DFN1.6X1.6-6
G682H09SQL1U	0.833(0.9*92.5%)	Push-Pull RESET	682 ESx	DFN1.6X1.6-6
G682H12TQL1U	1.050(1.2*87.5%)	Push-Pull RESET	682 FTx	DFN1.6X1.6-6
G682H12SQL1U	1.110(1.2*92.5%)	Push-Pull RESET	682 FSx	DFN1.6X1.6-6
G682H15TQL1U	1.313(1.5*87.5%)	Push-Pull RESET	682 GTx	DFN1.6X1.6-6
G682H15SQL1U	1.388(1.5*92.5%)	Push-Pull RESET	682 GSx	DFN1.6X1.6-6
G682H18TQL1U	1.575(1.8*87.5%)	Push-Pull RESET	682 HTx	DFN1.6X1.6-6
G682H18SQL1U	1.665(1.8*92.5%)	Push-Pull RESET	682 HSx	DFN1.6X1.6-6
G683L09TQL1U	0.788(0.9*87.5%)	Open-Drain $\overline{\text{RESET}}$	683 ATx	DFN1.6X1.6-6
G683L09SQL1U	0.833(0.9*92.5%)	Open-Drain $\overline{\text{RESET}}$	683 ASx	DFN1.6X1.6-6
G683L12TQL1U	1.050(1.2*87.5%)	Open-Drain $\overline{\text{RESET}}$	683 BTx	DFN1.6X1.6-6
G683L12SQL1U	1.110(1.2*92.5%)	Open-Drain $\overline{\text{RESET}}$	683 BSx	DFN1.6X1.6-6
G683L15TQL1U	1.313(1.5*87.5%)	Open-Drain $\overline{\text{RESET}}$	683 CTx	DFN1.6X1.6-6
G683L15SQL1U	1.388(1.5*92.5%)	Open-Drain $\overline{\text{RESET}}$	683 CSx	DFN1.6X1.6-6
G683L18TQL1U	1.575(1.8*87.5%)	Open-Drain $\overline{\text{RESET}}$	683 DTx	DFN1.6X1.6-6
G683L18SQL1U	1.665(1.8*92.5%)	Open-Drain $\overline{\text{RESET}}$	683 DSx	DFN1.6X1.6-6

Note: T: 87.5% S:92.5%

QL: DFN1.6X1.6-6

1: Bonding Code

U: Tape & Reel

Selector Guide

ORDER NUMBER	RESET THRESHOLD (V)	OUTPUT TYPE	MARKING	PACKAGE (Green)
G682L09TA31U	0.788(0.9*87.5%)	Push-Pull $\overline{\text{RESET}}$	6A Tx	ADFN1..5X1.5-6
G682L09SA31U	0.833(0.9*92.5%)	Push-Pull $\overline{\text{RESET}}$	6A Sx	ADFN1..5X1.5-6
G682L12TA31U	1.050(1.2*87.5%)	Push-Pull $\overline{\text{RESET}}$	6B Tx	ADFN1..5X1.5-6
G682L12SA31U	1.110(1.2*92.5%)	Push-Pull $\overline{\text{RESET}}$	6B Sx	ADFN1..5X1.5-6
G682L15TA31U	1.313(1.5*87.5%)	Push-Pull $\overline{\text{RESET}}$	6C Tx	ADFN1..5X1.5-6
G682L15SA31U	1.388(1.5*92.5%)	Push-Pull $\overline{\text{RESET}}$	6C Sx	ADFN1..5X1.5-6
G682L18TA31U	1.575(1.8*87.5%)	Push-Pull $\overline{\text{RESET}}$	6D Tx	ADFN1..5X1.5-6
G682L18SA31U	1.665(1.8*92.5%)	Push-Pull $\overline{\text{RESET}}$	6D Sx	ADFN1..5X1.5-6
G682H09TA31U	0.788(0.9*87.5%)	Push-Pull RESET	6E Tx	ADFN1..5X1.5-6
G682H09SA31U	0.833(0.9*92.5%)	Push-Pull RESET	6E Sx	ADFN1..5X1.5-6
G682H12TA31U	1.050(1.2*87.5%)	Push-Pull RESET	6F Tx	ADFN1..5X1.5-6
G682H12SA31U	1.110(1.2*92.5%)	Push-Pull RESET	6F Sx	ADFN1..5X1.5-6
G682H15TA31U	1.313(1.5*87.5%)	Push-Pull RESET	6G Tx	ADFN1..5X1.5-6
G682H15SA31U	1.388(1.5*92.5%)	Push-Pull RESET	6G Sx	ADFN1..5X1.5-6
G682H18TA31U	1.575(1.8*87.5%)	Push-Pull RESET	6H Tx	ADFN1..5X1.5-6
G682H18SA31U	1.665(1.8*92.5%)	Push-Pull RESET	6H Sx	ADFN1..5X1.5-6
G683L09TA31U	0.788(0.9*87.5%)	Open-Drain $\overline{\text{RESET}}$	6I Tx	ADFN1..5X1.5-6
G683L09SA31U	0.833(0.9*92.5%)	Open-Drain $\overline{\text{RESET}}$	6I Sx	ADFN1..5X1.5-6
G683L12TA31U	1.050(1.2*87.5%)	Open-Drain $\overline{\text{RESET}}$	6J Tx	ADFN1..5X1.5-6
G683L12SA31U	1.110(1.2*92.5%)	Open-Drain $\overline{\text{RESET}}$	6J Sx	ADFN1..5X1.5-6
G683L15TA31U	1.313(1.5*87.5%)	Open-Drain $\overline{\text{RESET}}$	6K Tx	ADFN1..5X1.5-6
G683L15SA31U	1.388(1.5*92.5%)	Open-Drain $\overline{\text{RESET}}$	6K Sx	ADFN1..5X1.5-6
G683L18TA31U	1.575(1.8*87.5%)	Open-Drain $\overline{\text{RESET}}$	6L Tx	ADFN1..5X1.5-6
G683L18SA31U	1.665(1.8*92.5%)	Open-Drain $\overline{\text{RESET}}$	6L Sx	ADFN1..5X1.5-6

Note: T: 87.5% S:92.5%

A3: ADFN1.5X1.5-6

1: Bonding Code

U: Tape & Reel

Absolute Maximum Ratings

All Voltages Referenced to GND

V _{CC} , V _{SEN}	-0.3V to +6.0V
CD.....	-0.3V to (V _{CC} +0.3V)
RESET, RESET (Push-Pull)	-0.3V to (V _{CC} + 0.3V)
RESET (Open Drain)	-0.3V to +6.0V
Input Current (All Pins)	±20mA
Output Current (RESET, RESET)	±20mA
Thermal Resistance Junction to Ambient, (θ _{JA})*	
SOT-23-5	250°C/W
SC-70-5	430°C/W
DFN1.6X1.6-6	TBD
ADFN1.5X1.5-6	TBD

Continuous Power Dissipation (T_A = +25°C)*

SOT-23-5	0.5W
SC-70-5	0.3W
DFN1.6X1.6-6	TBD
ADFN1.5X1.5-6	TBD
Thermal Resistance Junction to Case, (θ _{JC})	
SOT-23-5	60°C/W
SC-70-5	180°C/W
DFN1.6X1.6-6	TBD
ADFN1.5X1.5-6	TBD
Operating Temperature Range	-40°C to +125°C
Storage Temperature Range	-65°C to +150°C
Reflow Temperature (soldering, 10sec)	260°C
ESD (HBM) ⁽¹⁾	2kV

*Please refer to Minimum Footprint PCB Layout Section.

(1) Human body model is a 100pF capacitor discharged through a 1.5kΩ resistor into each pin.

Electrical Characteristics

V_{CC}=3.3V, T_A=25°C.

The device is not guaranteed to function outside its operating conditions. Parameters with MIN and/or MAX limits are 100% tested at +25°C, unless otherwise specified.

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage Range	V _{CC}		2.7	---	5.5	V
Supply Current	I _{CC}	V _{CC} =5V	---	12	25	μA
		V _{CC} =3.3V	---	10	20	
V _{SEN} Reset Threshold Accuracy	V _{TH}	V _{SEN} from high to low	V _{TH} -2%	---	V _{TH} +2%	V
Hysteresis	V _{HYST}	V _{TH} =0.788	---	0	---	%
		Other Versions	---	2	---	
V _{SEN} to RESET Delay	T _{RD}	V _{SEN} < V _{TH} -0.2V	---	30	80	μS
RESET Timeout Period	T _{RP}	C _D =4.7nF, V _{SEN} > V _{TH} +0.2V	7.2	9	12.5	mS
V _{CD} Ramp Threshold	V _{CD-RAMP}	V _{CC} =2.7 to 5.5V (V _{CD} rising)	0.774	0.788	0.818	V
RESET Output Voltage LOW	V _{OL}	V _{CC} =4.5V, I _{SINK} =3.2mA	---	---	0.3	V
RESET Output Voltage High	V _{OH}	V _{CC} =4.5V, I _{SOURCE} =800μA	0.8x V _{CC}	---	---	V
RESET Output Leakage Current (Open-drain)	I _{LKG}	V _{SEN} > V _{TH} , reset not asserted	---	---	1	μA
RESET Output Voltage LOW	V _{OL}	V _{CC} =4.5V, I _{SINK} =3.2mA	---	---	0.3	V
RESET Output Voltage High	V _{OH}	V _{CC} =4.5V, I _{SOURCE} =800μA	0.8x V _{CC}	---	---	V
V _{SEN} Leakage Current		V _{TH} =0.788	---	---	1	μA
		Other Versions (V _{SEN} =3V)	---	---	5	

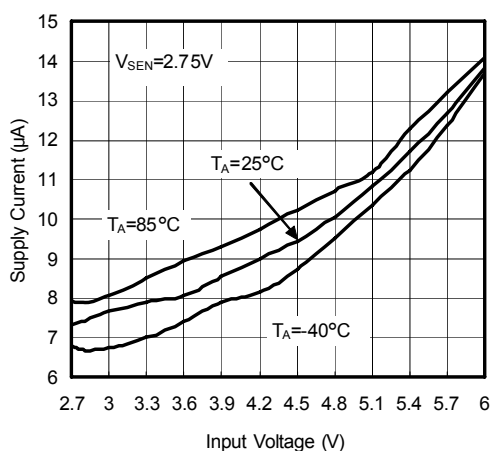
Pin Description

PIN				NAME	FUNCTION
T11/TA1	T12/TA2	DFN1.6X1.6-6	ADFN1.5X1.5-6		
1	1	1	1	RESET (or RESET)	Active Low (or High) Reset Output
2	2	2	2	GND	Ground
3	4	4	5	VSEN	Voltage Sense
4	5	6	4	CD	Delay Capacitance
5	3	3	6	VCC	Supply Voltage
		5	3	NC	No Connection

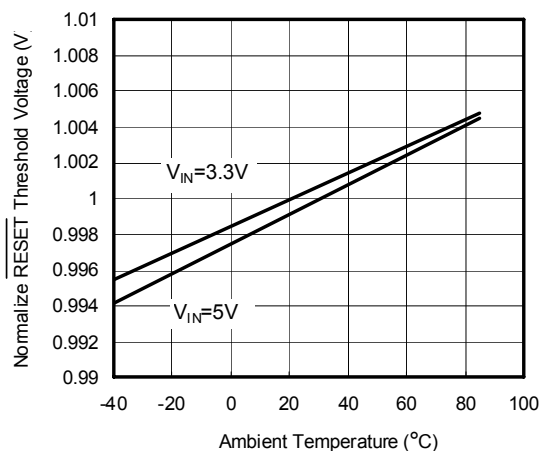
Typical Performance Characteristics

$T_A=25^{\circ}\text{C}$, unless otherwise noted.

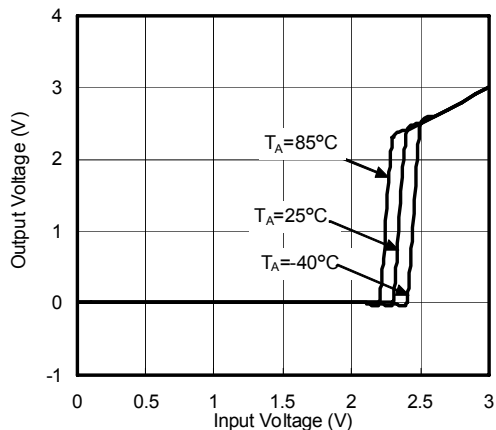
Supply Current vs. Input Voltage



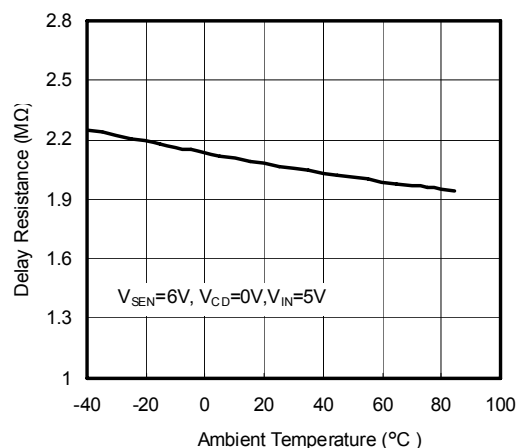
Normalize $\overline{\text{RESET}}$ Threshold Voltage vs. Ambient Temperature



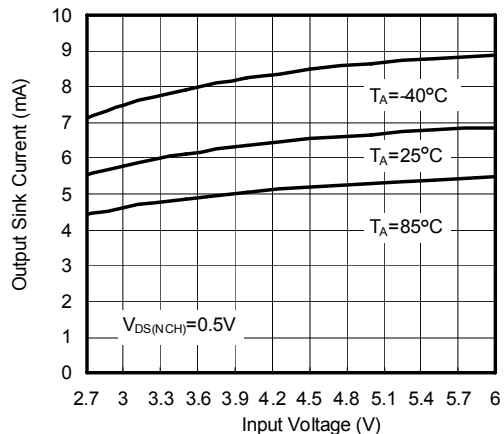
Output Voltage vs. Input Voltage



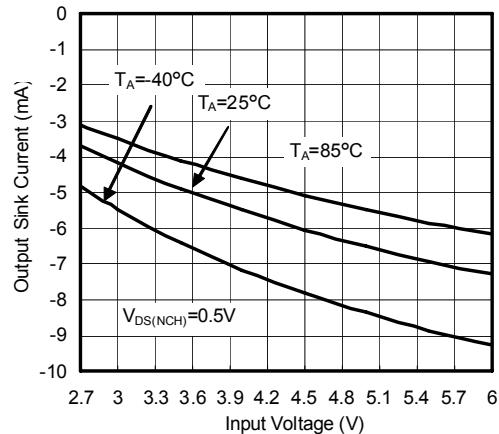
Delay Resistance vs. Ambient Temperature



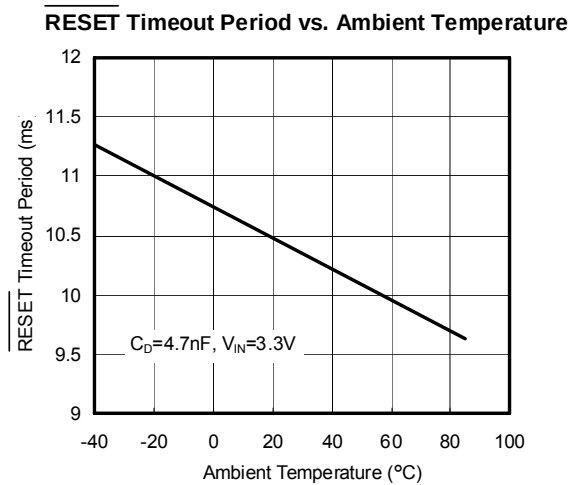
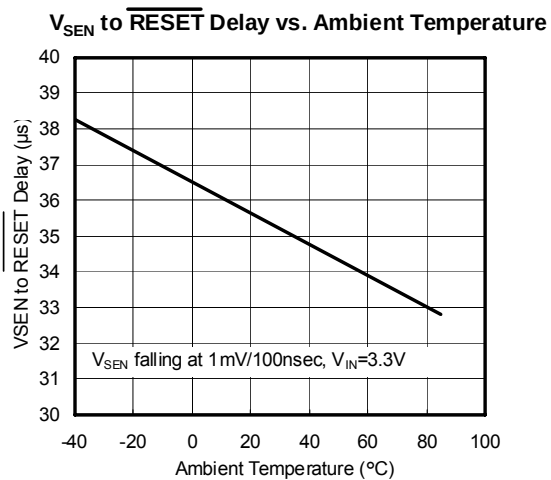
Output Sink Current vs. Input Voltage



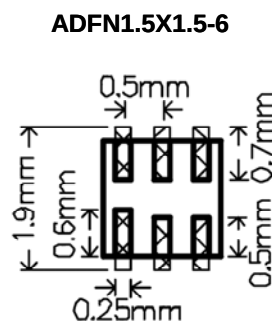
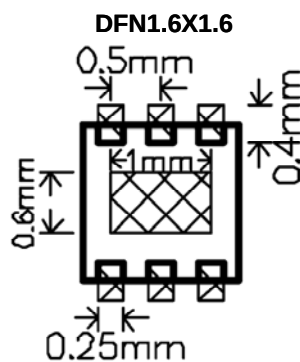
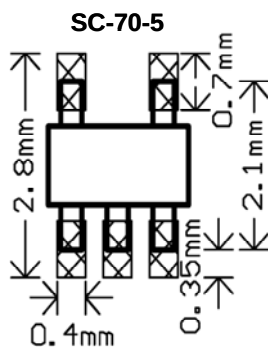
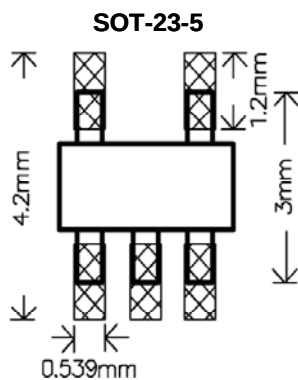
Output Source Current vs. Input Voltage



Typical Performance Characteristics (continued)



Minimum Footprint PCB Layout Section



Detailed Description

A microprocessor's (μP 's) reset input starts the μP in a known state. The G682L/G682H/G683L assert reset to prevent code-execution errors during power-up, power-down, or brownout conditions. Since the sense pin is separated from power supply, it allows the IC to monitor added power supply. They assert a reset signal whenever the V_{SEN} supply voltage declines below a preset threshold (V_{TH-}), keeping it asserted for time delay set by capacitor connected to C_D pin, after V_{SEN} has risen above the high reset threshold V_{TH+} ($V_{TH+} + V_{HYS}$). The G683L uses an open-drain output, and the G682L/G682H have a push-pull output stage. Connect

a pull-up resistor on the G683L's $\overline{RESET}$ output to any supply between 0 and 5.5V. The time delay is set by external capacitor C_D , and internal pull up current I_{CD} . When the voltage at C_D pin exceeds the buffer threshold, typically 0.788V, the $\overline{RESET}$ output high (RESET output low). The voltage detector and buffer have built-in hysteresis to prevent erratic reset operation. The formula of time delay is $T (ms) \cong 2.7 \times C_D (nF)$. Figure1 and Figure2 show Timing and Functional Block Diagrams.

Timing Diagram

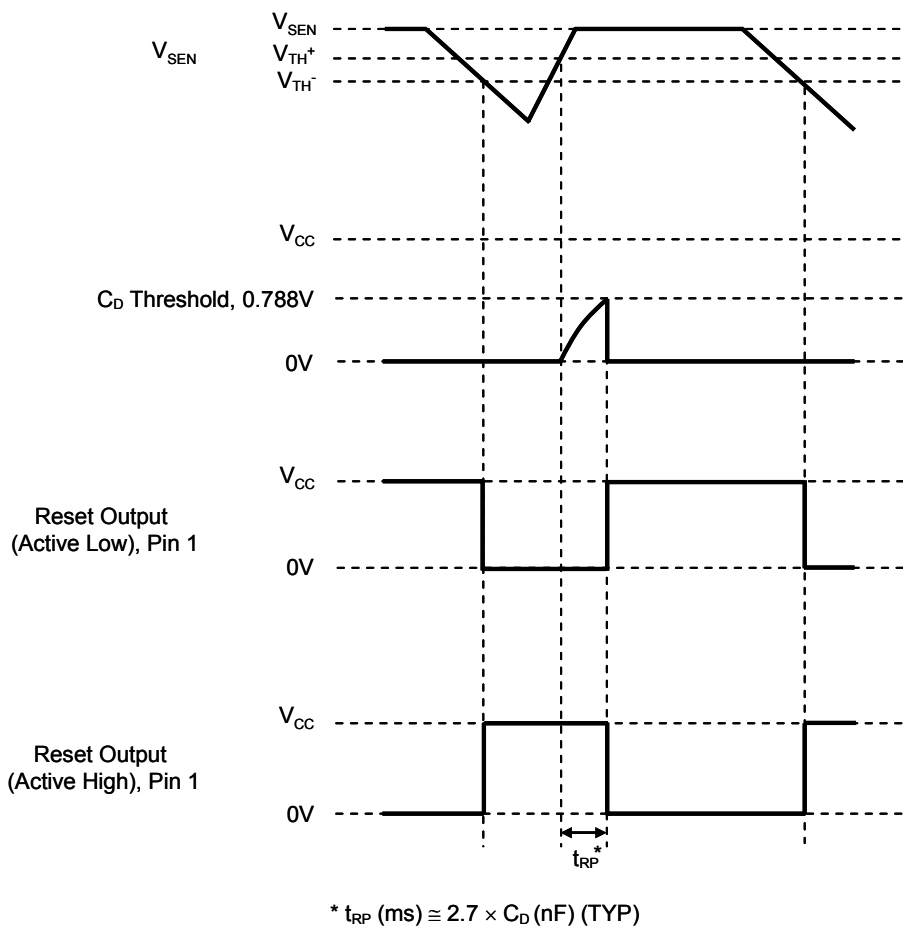
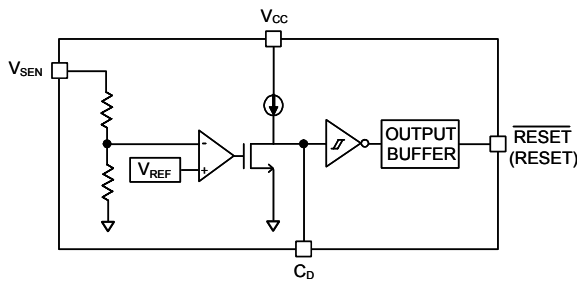
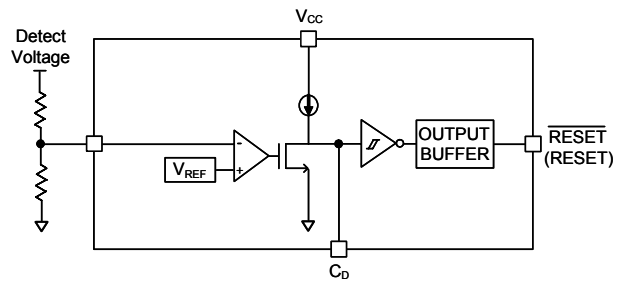


Figure 1

Functional Diagram



Internal Resistor Divide Sense Voltage



External Resistor Divide Sense Voltage (only G68__09T_)

Figure 2

Separated Sense Pin

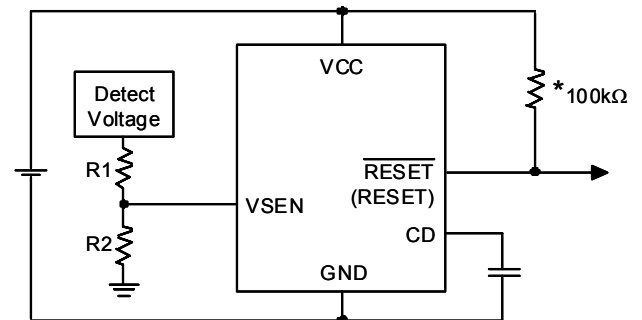
Since the sense pin is separated from power supply, it allows the IC to monitor added power supply. Using the IC with the sense pin separated from power supply enables output to maintain the state of detection even when voltage of the monitored power supply drops to 0V.

Adjustable Reset Threshold (G68__09T_)

Since the V_{SEN} pin of G68__09T_ is high impedance, it can be used to adjust reset threshold. Connect two resistors in series from the detected power to GND and the divided voltage is compared to reset threshold (0.788V typical). (Figure 3)

The voltage threshold is:

$$V_{th} = 0.788 \times \frac{(R1 + R2)}{R2}$$



*The 100kΩ pull up resistor is only for G683L

Figure 3

Ensuring a Valid Reset Output Down to $V_{CC} = 0V$

When V_{CC} falls below 0.8V, the G682 $\overline{RESET}$ output no longer sinks current and it becomes an open circuit. Therefore, high-impedance CMOS logic inputs connected to $\overline{RESET}$ can drift to undetermined voltages. This presents no problem in most applications since most μP and other circuitry is inoperative with V_{CC} below 0.8V. However, in applications where $\overline{RESET}$ must be valid down to 0V, adding a pull-down resistor to $\overline{RESET}$ causes any stray leakage currents to flow to ground, holding $\overline{RESET}$ low (Figure 4). R1's value is not critical; 100k Ω is large enough not to load $\overline{RESET}$ and small enough to pull $\overline{RESET}$ to ground. A 100k Ω pull-up resistor to V_{CC} is also recommended for the G683L if $\overline{RESET}$ is required to remain valid for $V_{CC} < 0.8V$.

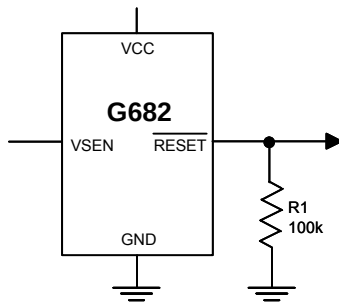


Figure 4

G683L Open-Drain RESET Output Allows Use with

Multiple Supplies

Generally, the pull-up connected to the G683L will connect to the supply voltage that is being monitored at the IC's V_{CC} pin. However, some systems may use the open-drain output to level-shift from the monitored supply to reset circuitry powered by some other supply (Figure 5). Note that as the G683L's V_{CC} decreases below 1V, so does the IC's ability to sink current at $\overline{RESET}$. Also, with any pull-up, $\overline{RESET}$ will be pulled high as V_{CC} decays toward 0. The voltage where this occurs depends on the pull-up resistor value and the voltage to which it is connected.

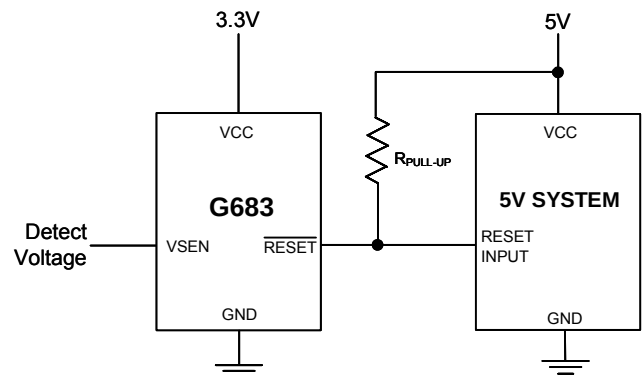
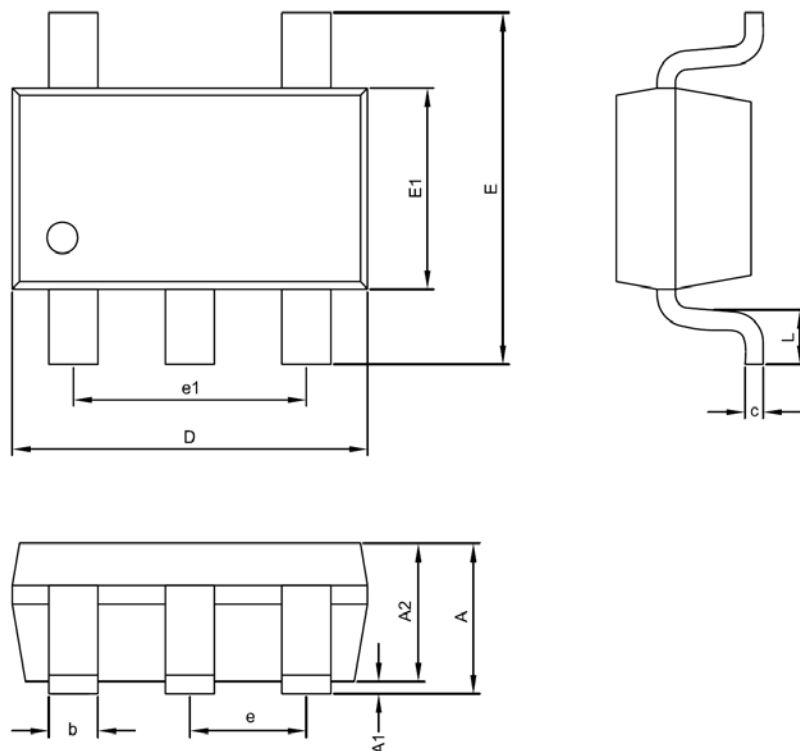
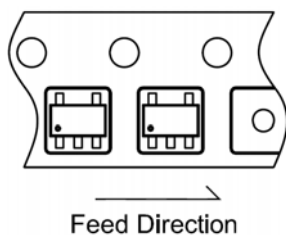


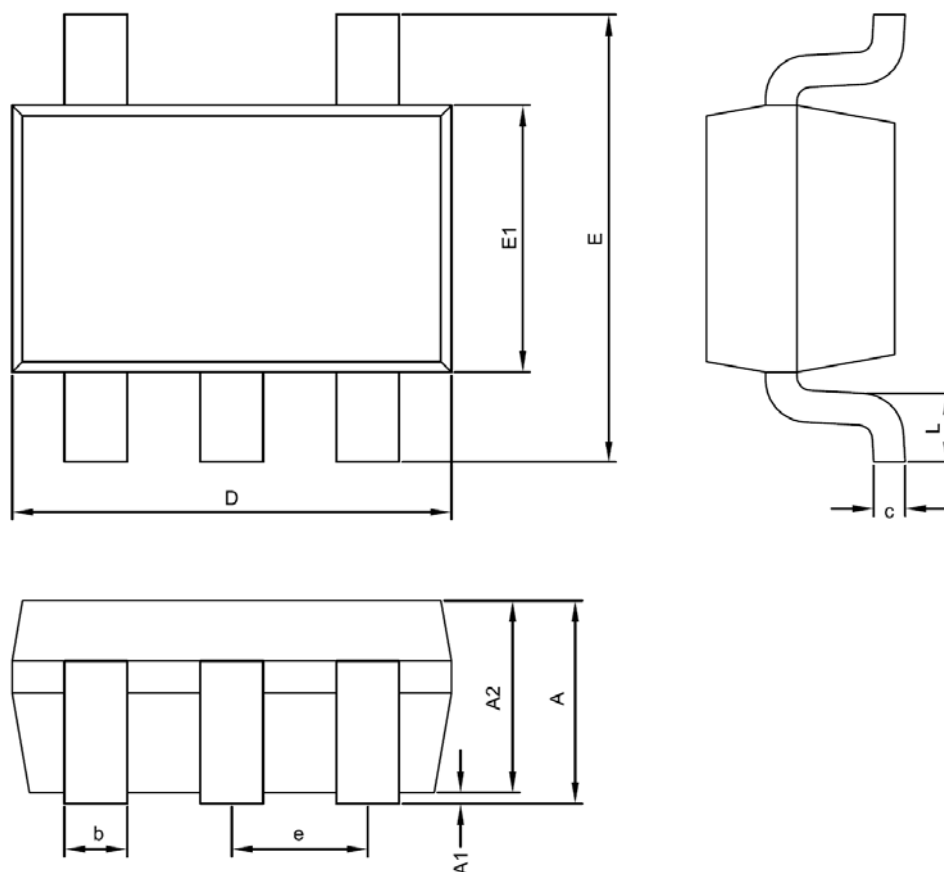
Figure 5

Package Information

SOT-23-5 Package

Symble	DIMENSION IN MM			DIMENSION IN INCH		
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A	1.00	1.10	1.45	0.039	0.043	0.057
A1	0.00	---	0.10	0.000	---	0.004
A2	1.00	1.10	1.30	0.039	0.043	0.051
D	2.70	2.90	3.10	0.106	0.114	0.122
E	2.60	2.80	3.00	0.102	0.110	0.118
E1	1.50	1.60	1.70	0.059	0.063	0.067
c	0.08	0.15	0.25	0.003	0.006	0.010
b	0.30	0.40	0.50	0.012	0.016	0.020
e	0.95 BSC			0.037 BSC		
e1	1.90 BSC			0.075 BSC		
L	0.30	0.45	0.60	0.012	0.018	0.024

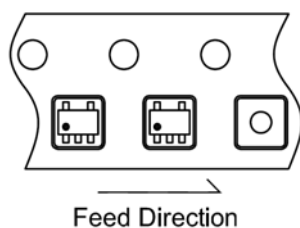
Taping Specification


PACKAGE	Q'TY/REEL
SOT-23-5	3,000 ea

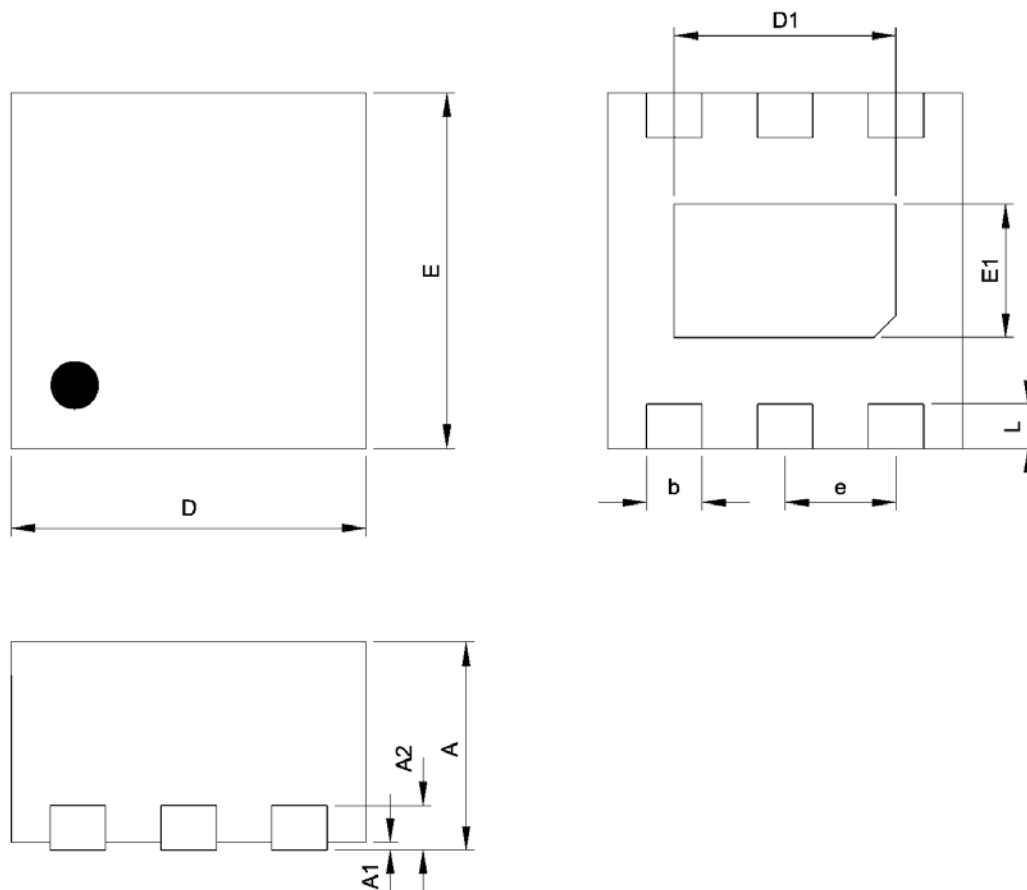

SC-70-5 Package

Symble	DIMENSION IN MM			DIMENSION IN INCH		
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A	0.80	0.95	1.10	0.031	0.037	0.043
A1	0.00	---	0.10	0.000	---	0.004
A2	0.70	0.90	1.00	0.028	0.035	0.039
D	1.80	2.00	2.20	0.071	0.079	0.087
E	1.80	2.10	2.40	0.071	0.083	0.094
E1	1.15	1.25	1.35	0.045	0.049	0.053
c	0.08	0.15	0.25	0.003	0.006	0.010
b	0.15	0.25	0.30	0.006	0.010	0.012
e	0.65 BSC			0.026 BSC		
L	0.26	0.36	0.46	0.010	0.014	0.018

Taping Specification



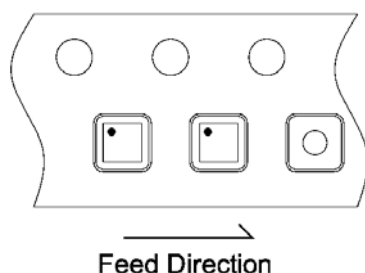
PACKAGE	Q'TY/REEL
SC-70-5	3,000 ea



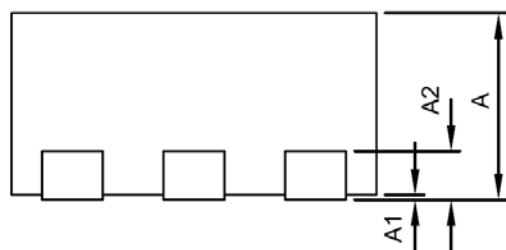
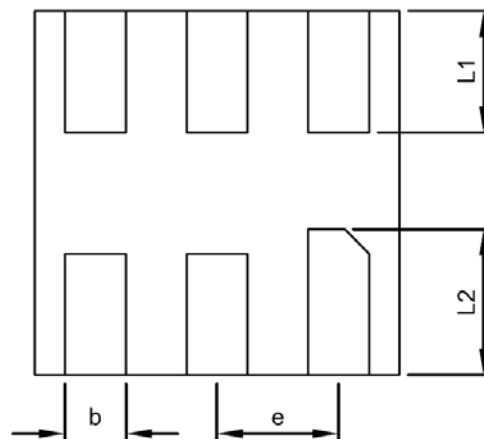
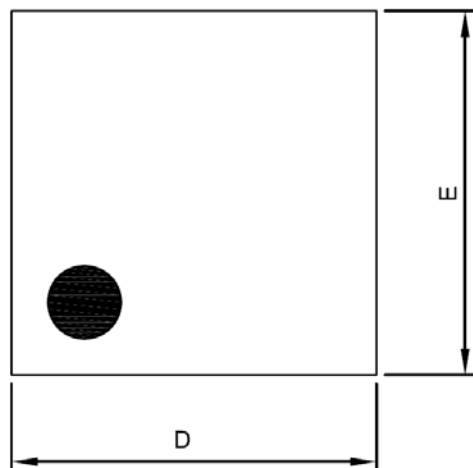
DFN1.6X1.6-6 Package

Symble	DIMENSION IN MM			DIMENSION IN INCH		
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A	0.80	0.90	1.00	0.0315	0.0354	0.0394
A1	0.00	---	0.05	0.0000	---	0.0020
A2	0.19	0.20	0.21	0.0075	0.0079	0.0083
D	1.55	1.60	1.65	0.0610	0.0630	0.0650
E	1.55	1.60	1.65	0.0610	0.0630	0.0650
D1	0.95	1.00	1.05	0.0374	0.0394	0.0413
E1	0.55	0.60	0.65	0.0217	0.0236	0.0256
b	0.20	0.25	0.30	0.0079	0.0098	0.0118
e	0.50 BSC			0.0197 BSC		
L	0.15	0.20	0.25	0.0059	0.0079	0.0098

Taping Specification



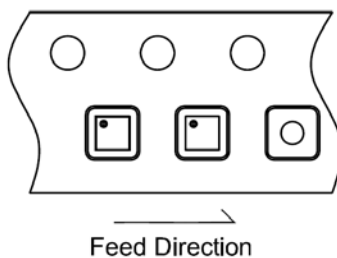
PACKAGE	Q'TY/REEL
DFN1.6X1.6-6	3,000 ea



ADFN1.5X1.5-6 Package

Symble	DIMENSION IN MM			DIMENSION IN INCH		
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A	0.70	0.75	0.80	0.0276	0.0295	0.0315
A1	0.00	---	0.05	0.0000	---	0.0020
A2	0.19	0.20	0.21	0.0075	0.0079	0.0083
D	1.45	1.50	1.55	0.0570	0.0590	0.0610
E	1.45	1.50	1.55	0.0570	0.0590	0.0610
b	0.20	0.25	0.30	0.0079	0.0098	0.0118
e	0.50 BSC			0.0197 BSC		
L1	0.45	0.50	0.55	0.0177	0.0197	0.0217
L2	0.55	0.60	0.65	0.0217	0.0236	0.0256

Taping Specification



PACKAGE	Q'TY/REEL
ADFN1.5X1.5-6	3,000 ea

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