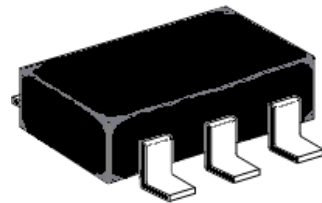




Current Measurement IC

Features

- Complete Unipolar Rail Current Measurement
- Wide Supply and Common-mode Voltage Range
- Independent Supply and Input common voltages
- Three Resistors Gain Set
- Linearity Output
- Package: SOT-25

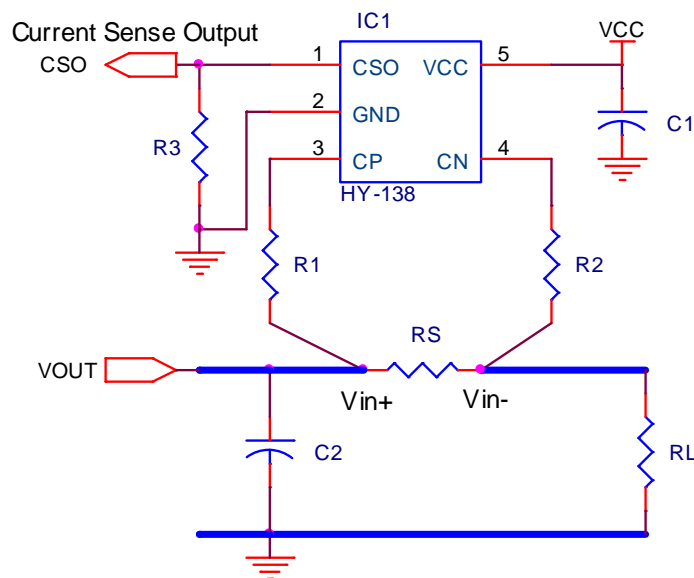


SOT-25

General Description

The **HY-138** is a 1-chip rail current measurement IC. Wide input common-mode voltages from 2.7V to 28V uses for sensing the rail current under these rail voltage, the internal comparator converts the sense current to a variety of linearity voltage output, and SOT-25 package is very suitable for a poor space application system field for current detection.

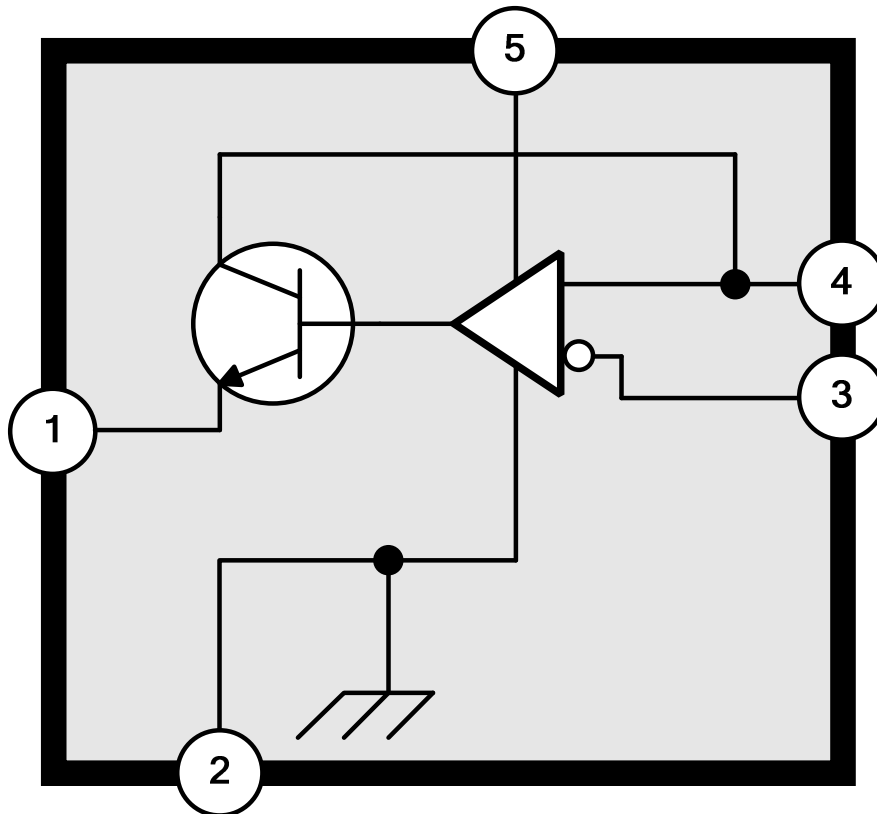
Typical Application Circuit



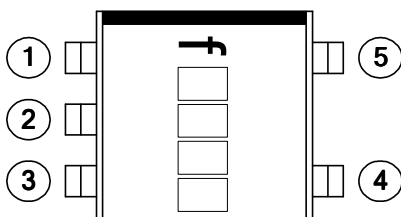
Rail Current Sense Application Example



Functional Block Diagram



MARK VIEW



PIN DESCRIPTION

NAME	STATUS	DESCRIPTION
CSO	O	Sense Output
GND	P	IC Ground
CN	I	Sense Minus Input
CP	I	Sense Plus Input
V _{CC}	P	IC Power Supply

Order Information

Part Number	Operating Temperature	Package	Description
HY-138KRLF	-20°C ~ 85°C	SOT-25	Tape & Reel



Absolute Maximum Ratings

Symbol	Parameter	Rating
V_{CC}	Supply Voltage	+25V
$V_{CP} V_{CN}$	Sense Plus / Minus Input Voltage	-0.3 V ~ +25V
$V_{CP} - V_{CN}$	Input Differential Voltage	-25V ~ +1.5V
V_{CSO}	Sense Output Voltage ($V_{CC} = 25V$)	-0.3V ~ +25V
T_j	Maximum Junction Temperature	150°C
Θ_{ja}	Thermal Resistance Junction to Ambient	200°C/W
P_D	SOT-25 Power Dissipation	220mW
T_a	Operating Temperature Range	-20°C ~ 85°C
T_s	Storage Temperature Range	-65°C ~ 150°C
soldering, 10 sec	Lead Temperature	+260°C



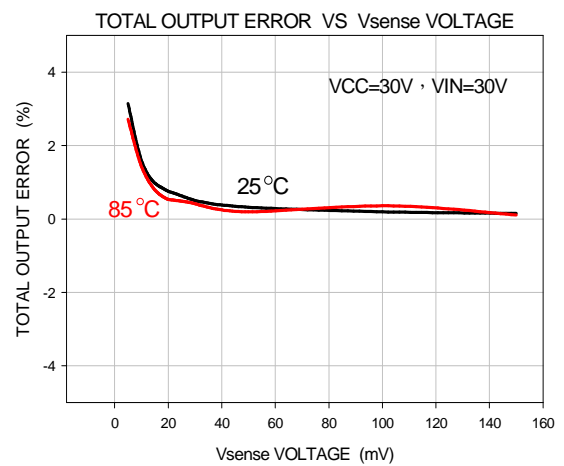
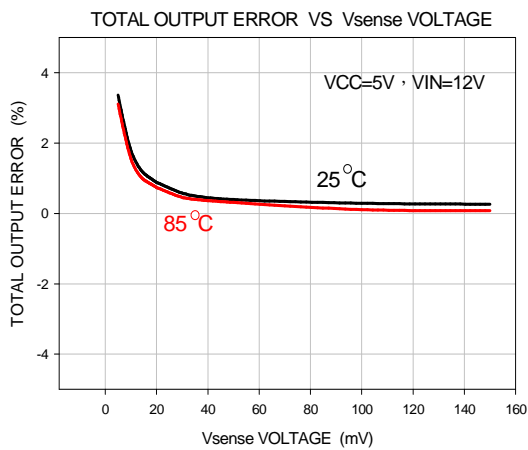
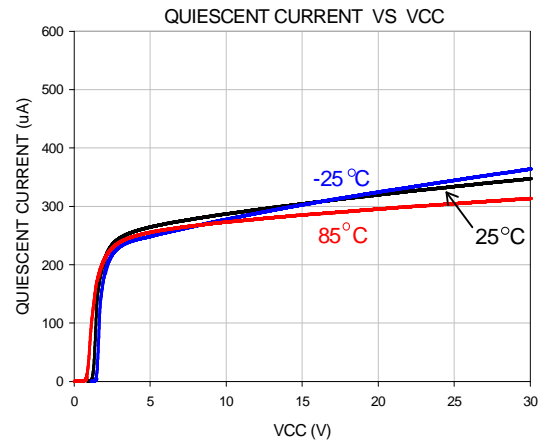
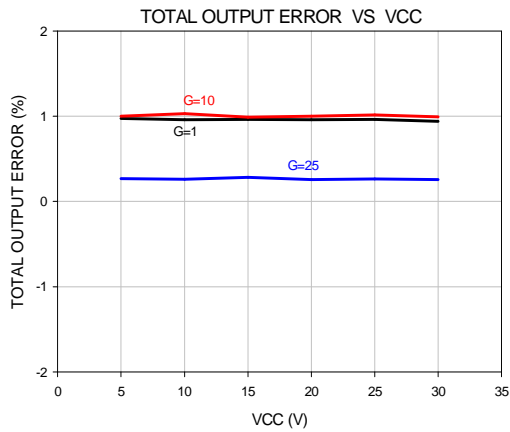
Electrical Characteristics

Ta = -20°C ~ +85°C, V_{CC} = 5V, V_{IN}⁺ = 12V, R_{OUT} = 125KΩ

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Full Scale Sense Voltage	V _{RS}	V _{RS} = V _{IN} ⁺ - V _{IN} ⁻	-	100	500	mV
Common-Mode Input Voltage	V _{CM}		2.7	-	25	V
Common-Mode Rejection	CMRR	V _{IN} ⁺ = 2.7V to 25V, V _{RS} = 50mV	100	120	-	dB
Input Offset Voltage vs temp	V _{OFFSET(ta)}	t _{MIN} to t _{MAX}	-	4	-	μV/°C
Input Offset Voltage vs V _{CC}	V _{OFFSET(vcc)}	V _{CC} = 2.7V to 25V, V _{RS} = 50mV	-	2.5	10	μV/V
Input Bias Current	I _{BIAS}	V _{CP} , V _{CN}	-	2	-	μA
Non-linearity Error	NLE	V _{RS} = 10mV to 150mV	-	-	±1	%
Total Output Error	TOE	V _{RS} = 100mV	-	-	±2	%
Output Impedance	R _{OUT}		-	1 5	-	GΩ pF
Voltage Swing to V _{CC}	V _{SCC}		-	V _{CC} -0.8	-	V
Voltage Swing to V _{CM}	V _{SCM}		-	V _{CM} -0.8	-	V
Bandwidth	BW	R _{OUT} = 125KΩ	-	32	-	kHz
Settling Time	t _s	5V Setp, R _{OUT} = 125KΩ	-	30	-	μs
Total Output-Current Noise	I _{NE}	BW = 100KHz	-	3	-	nA
Operating Voltage Range	V _{CC}		2.7	-	30	V
Quiescent Current	I _{CC}	V _{RS} = 0, V _{CC} = 25V	-	400	-	μA
Operating Temperature Range	T _a		-20		+85	°C



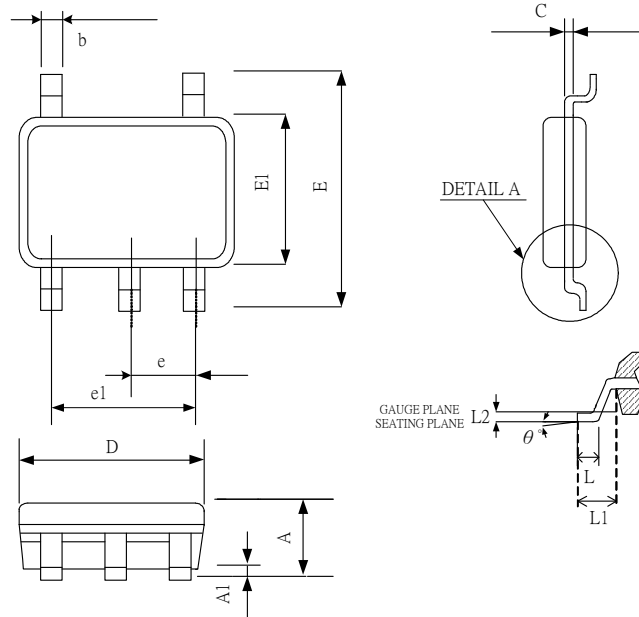
Typical Characteristics





Package Outline

SOT-25

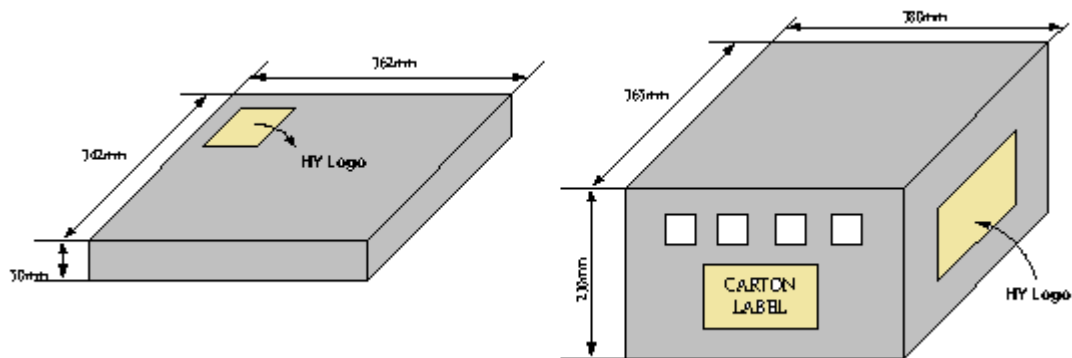


SYMBOLS	MIN	MAX
A	1.05	1.35
A1	0.05	0.15
A2	1.00	1.20
b	0.25	0.50
c	0.08	0.20
D	2.70	3.00
E	2.60	3.00
E1	1.50	1.70
e	0.95 BSC.	
e1	1.90 BSC.	
L	0.30	0.55
L1	0.60 REF.	
L2	0.25 BSC.	
θ°	0	10



Packing Specification



TAPE & REEL INSIDE BOX AND CARTON



Packing Quantity Specifications

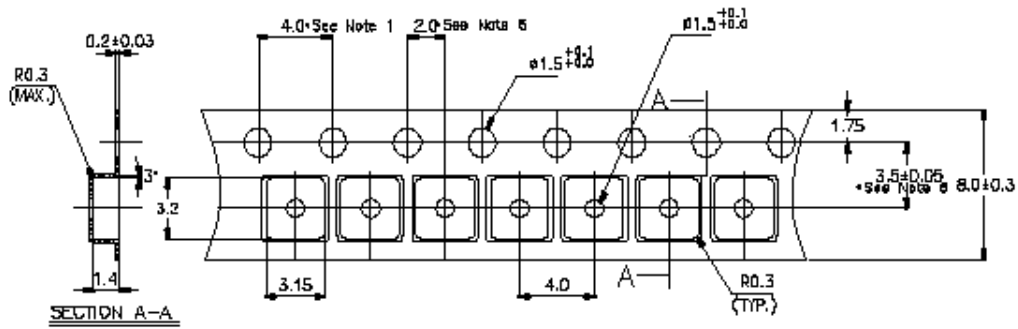
2500 EA / REEL
4 INSIDE BOXES / CARTON

Label Specifications

Hawyang Semiconductor Corp.,	
Product: HY-138KRLF	
Lot No.: xxxxxxxx	
D/C: A3472	
Qty: 2,500	
	



Carrier Tape Dimensions



Cover Tape Dimensions And Reel Dimensions

