ELECTRICAL CHARACTERISTICS (T_j=25 unless otherwise specified, I_{shunt} = 1mA.)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Units1Ą
Quiescent Current	I_Q	Live to Neutral = 10V	450	500	550	µA
Reference Voltage	V_{REF}	IN+ to Neutral	5.8	6.0	6.2	V
Power Supply		Live to Neutral	12.2	12.7	13.2	V
Shunt Regulator Voltage	V_{REG}	Live to Neutral,I_{shunt}=-2mA	-0.9	-0.6	-	V
Amplũ						

Calculation of RSET Resistor

The AmpOut signal must exceed the window comparatorûs VTH threshold voltage for longer than the delay timer and calculated by:

$$V_{TH} \quad I_{FAULT} \qquad R_{SET} \quad \frac{2 \quad \overline{P}}{N}$$

$$R_{SET} = \frac{V_{TH} \quad N}{I_{FAULT} \qquad \frac{t}{P}}$$

where: V_{TH}= 3.5 V P= Period of the AC Line

I_{FAULT}= 5 mA UL943B N=Ratio of secondary to primary turns (1000:1)

t= 1 ms timer delay R_{SET}=505KÝ (511KÝ standard 1% value)

In practice, the transformer is non-ideal, so RSET may need to be adjusted by up to 30% to obtain the desired Ifault trip threshold.

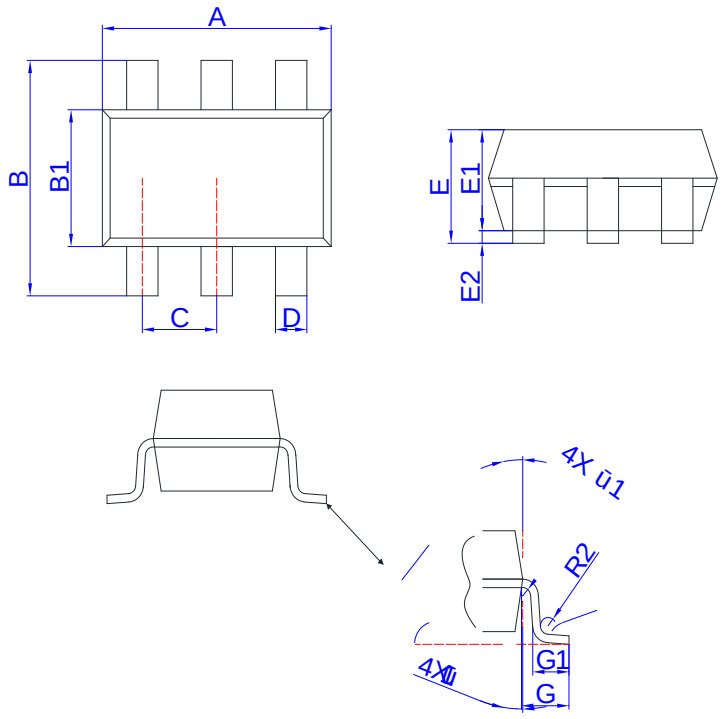
Calculation of VOS Trip Threshold Error

Since the sense coil is directly connected to the feedback of the sense amplifier, the VOS offset

ORDERING INFORMATION

Order code	Package	Base qty. (pcs)	Delivery mode	MPQ (pcs)	MOQ (pcs)
JJ146	SOT-23-6	3K	Tape and Reel	30K	120K

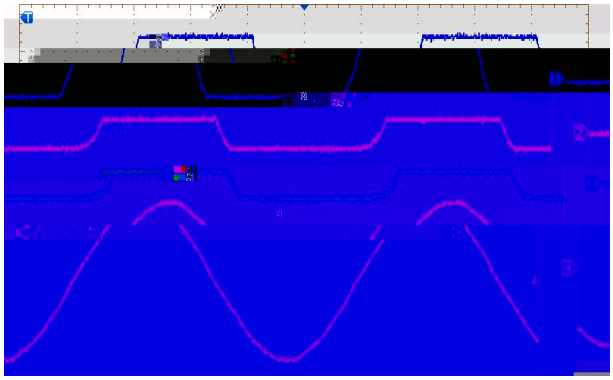
Package dimensions



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.82	2.92	3.02	0.111	0.115	0.119
B	2.60	2.80	3.00	0.102	0.11	0.118
B1	1.526	1.62	1.726	0.06	0.064	0.068
C	0.90	0.95	1.00	0.035	0.037	0.039
D	0.35	-	0.45	0.014	-	0.018
E	-	-	1.35	-	-	0.053
E1	1.00	1.10	1.20	0.039	0.043	0.047
E2	0	-	0.15	0	-	0.006
F	0.25REF			0.01REF		
G	0.6REF			0.024REF		
G1	0.35	0.45	0.60	0.014	0.018	0.024
R1	0.10	-	0.25	0.004	-	0.01
R2	0.10	-	-	0.004	-	-
ū1	5Á	10Á	15Á	5Á	10Á	15Á
ū2	0Á	4Á	8Á	0Á	4Á	8Á

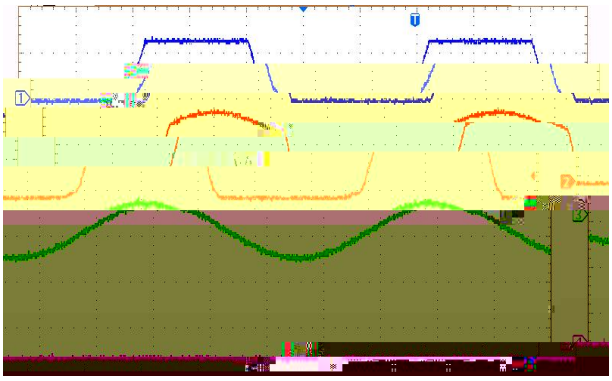
Typical characteristics (Test according to typical application diagram Ta=25)

Typical Waveforms, No Ground Fault



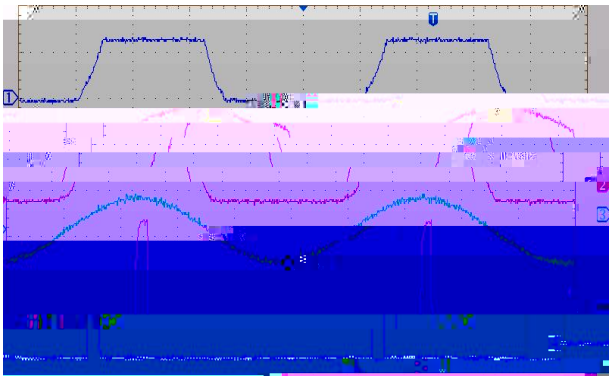
CH1: V_{LIVE} 10V/DIV
CH2: Ampout 10V/DIV
CH3: V_{IN+} 10V/DIV
CH4: V_{AC} 100V/DIV
Time: 4ms/DIV

4mA Ground Fault



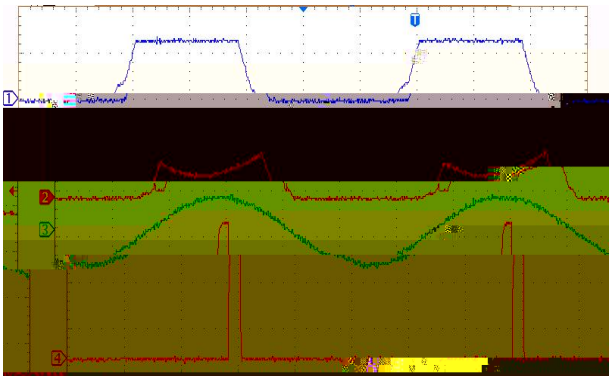
CH1: V_{LIVE} 10V/DIV
CH2: Ampout 5V/DIV
CH3: I_{FAULT} 10mA/DIV
CH4: Driver 1V/DIV
Time: 4ms/DIV

5mA Ground Fault



CH1: V_{LIVE} 10V/DIV
CH2: Ampout 5V/DIV
CH3: I_{FAULT} 10mA/DIV
CH4: Driver 1V/DIV
Time: 4ms/DIV

5mA Ground Fault (coil reverse)



CH1: V_{LIVE} 10V/DIV
CH2: Ampout 5V/DIV
CH3: I_{FAULT} 10mA/DIV
CH4: Driver 1V/DIV
Time: 4ms/DIV