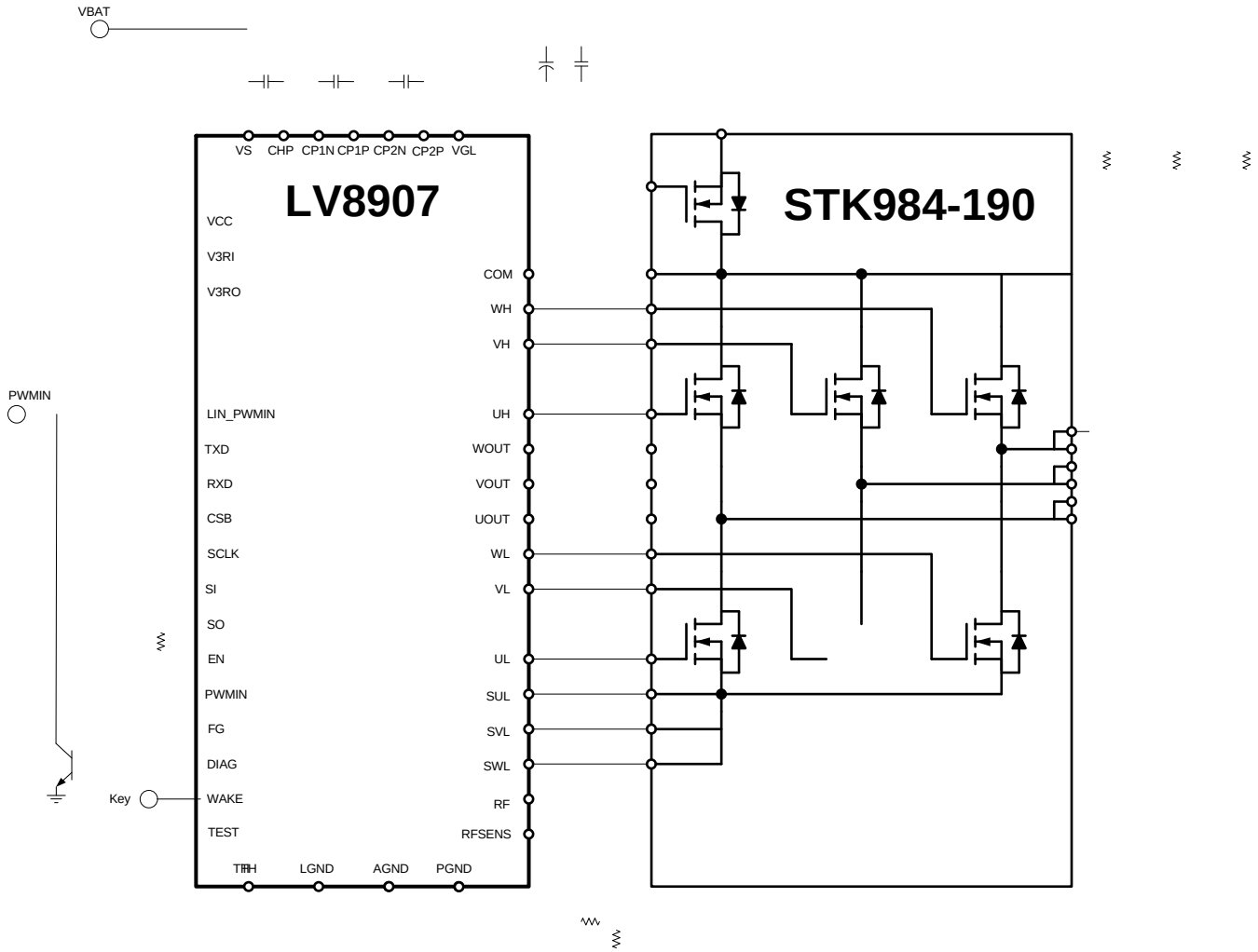
STK984-190-E

MOSFET Power Module
40 V, 30 A, Compact DIP

The STK984-190-E is a MOSFET power module containing 6 MOSFETs in a three-phase bridge (B6) configuration and a seventh MOSFET used as a reverse battery protection switch. The compact module is 29.6 mm 18.2 mm and is 4.3 mm high (see package drawing for specification details). The MOSFET module uses a DBC substrate for excellent


VBAT
VS
CHP
CP1N
CP1P
CP2N
CP2P
VGL
LV8907
STK984-190
VCC
V3RI
V3RO
LIN_PWMIN
TXD
RXD
CSB
SCLK
SI
SO
EN
PWMIN
FG
DIAG
WAKE
TEST
COM
WH
VH
UH
WOUT
VOUT
UOUT
WL
VL
UL
SUL
SVL
SWL
RF
RFSENS
PWMIN
Key
LGND
AGND
PGND

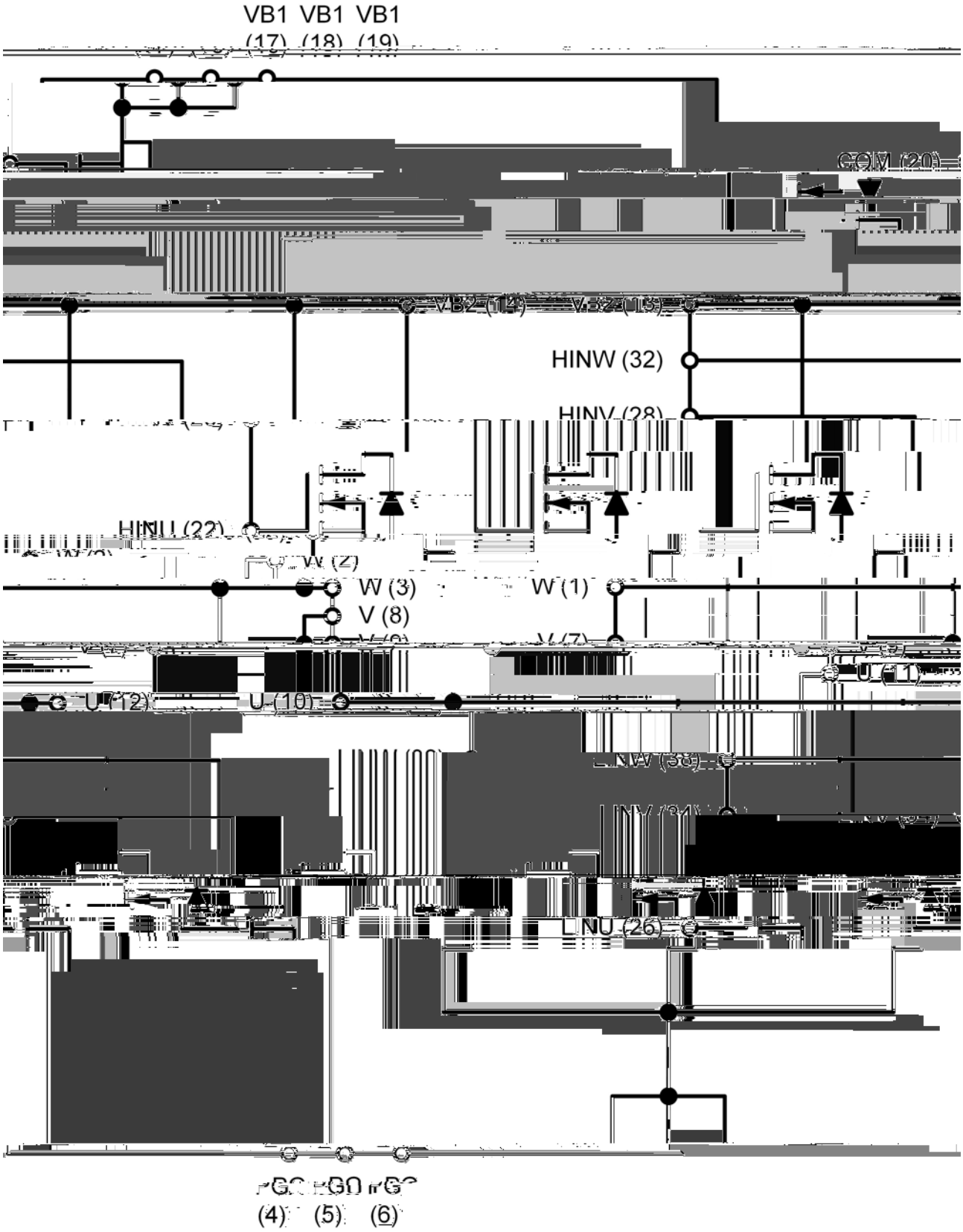


Figure 3: Block Diagram

PIN FUNCTION DESCRIPTION

Pin	Name	Description
1	W	W Phase Output
2	W	W Phase Output
3	W	W Phase Output
4	PG	Power Ground
5	PG	Power Ground
6	PG	Power Ground
7	V	V Phase Output

ABSOLUTE MAXIMUM RATINGS (Notes 1,2)

1. Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, dev

ELECTRICAL CHARACTERISTICS (Note 4)
at Tc=25 C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Chip-Case Resistance	j-c	Each MOSFET die to outside of case	-	-	4.1	C/W
Drain-to-Source Breakdown Voltage	$V_{BR(DSS)}$	V_{GS} = 0 V, I_D = 250 µA	40	-	-	V
Drain-to-Source Breakdown Voltage Temperature Coefficient	$V_{BR(DSS)}$ /T_J	Note 5	-	40.8	-	mV/ C
Zero Gate Voltage Drain Current	I_{DSS}	V_{GS} = 0 V, V_{DS} = 40 V	-	-	1.0	A
Gate-to-Source Leakage Current	I_{GSS}	V_{GS} = 0 V, V_{GS} = ±20 V			±100	nA

4. Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.
5. Typical data taken from packaged discrete device characteristics

TYPICAL CHARACTERISTICS

Figure 5 ID versus VDS for different temperatures (VGS = 10 V)

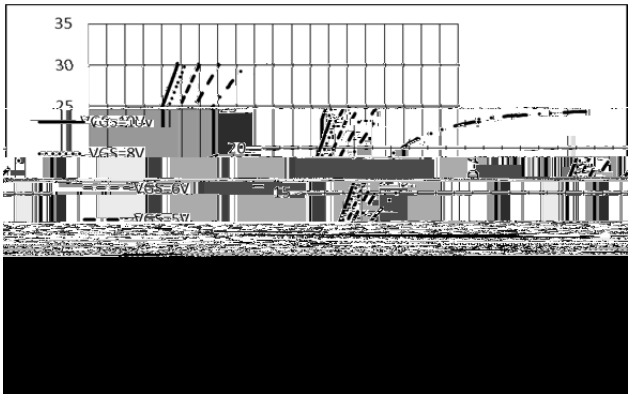


Figure 4 ID versus VDS for different VGS values (Tj = 175 C)

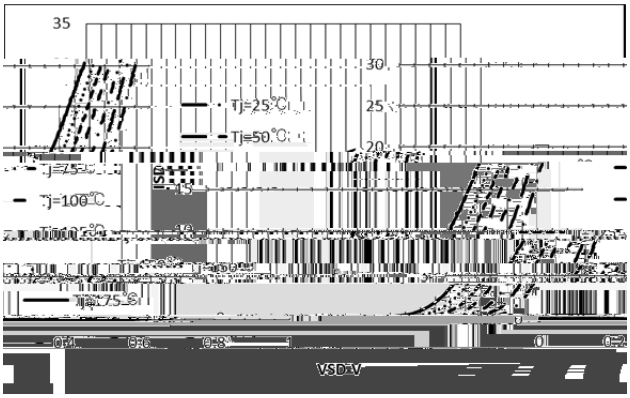


Figure 9 ISD versus VSD for different temperatures

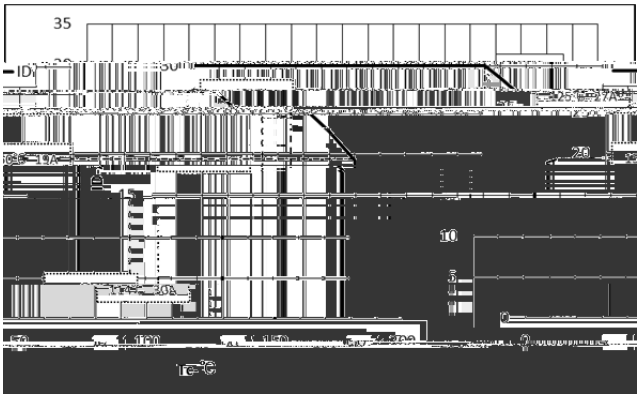


Figure 7 Switching losses versus drain current Tj = 175 C, Id = 30 A, Rg = 51 Ω, L = 40 H

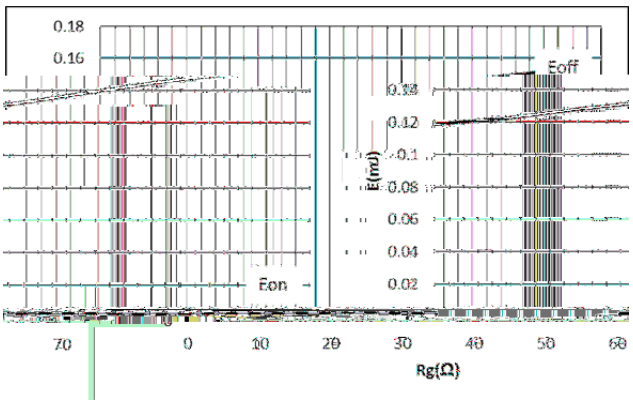


Figure 6 Switching losses versus gate resistance Tj = 175 C, Id = 30 A, L = 40 H

Mounting Instructions

Item	Recommended Condition
Pitch	26.0±0.1 mm (Please refer to Package Outline Diagram)
Screw	Diameter : M3 Screw head types: pan head, truss head, binding head
Washer	Plane washer dimensions (Figure 14) D = 7 mm, d = 3.2 mm and t = 0.5 mm JIS B 1256
Heat sink	Material: Aluminum or Copper Warpage (the surface that contacts IPM) : 50 to 50 m Screw holes must be countersunk. No contamination on the heat sink surface that contacts IPM.
Torque	

PACKAGE DIMENSIONS
unit : mm

CASE MODBL
ISSUE A

4. PACKAGE IS MISSING PINS: 15, 16, 21, 2