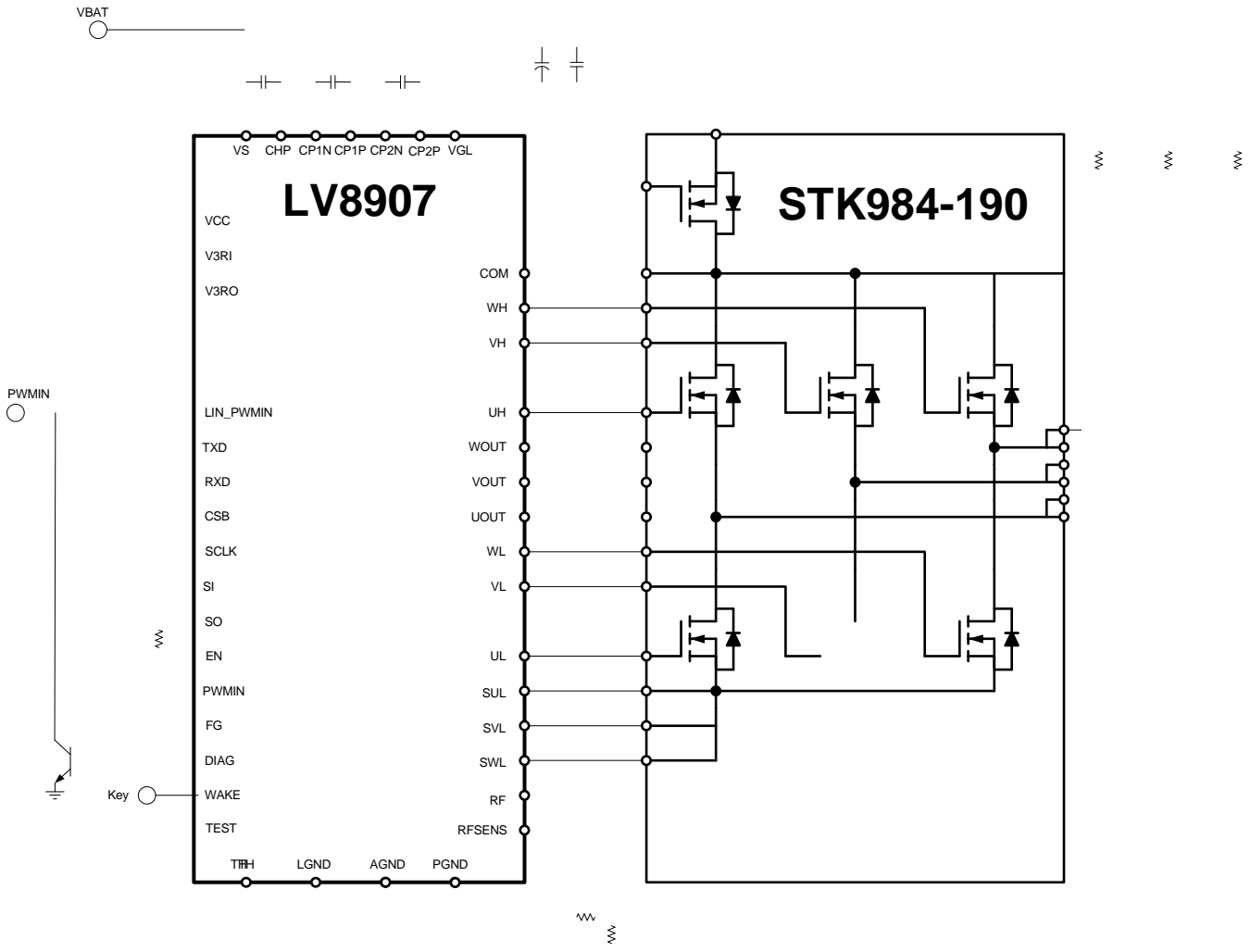


STK984-190-E

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 x 18.2 mm and is 4.3 mm high (see package drawing for specification details). The MOSFET module uses a DBC substrate for excellent

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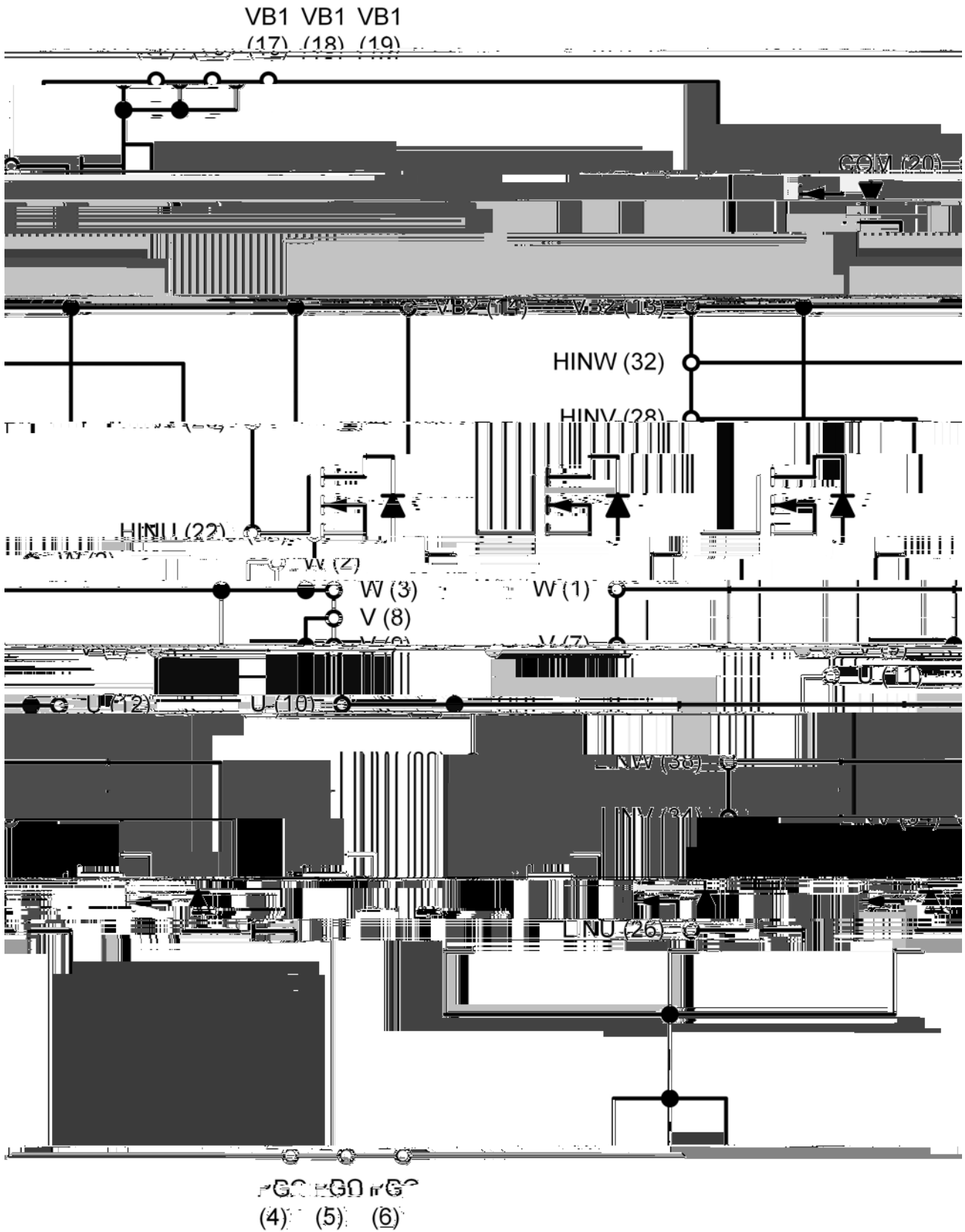


Figure 3: Block Diagram

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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

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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

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ELECTRICAL CHARACTERISTICS (Note 4)

at $T_C=25\text{ C}$

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	$V_{BR(DSS)}$	$V_{GS} = 0\text{ V}$, $I_D = 250\text{ }\mu\text{A}$	40	-	-	V
Drain-to-Source Breakdown Voltage Temperature Coefficient	$\frac{V_{BR(DSS)}}{T_J}$	Note 5	-	40.8	-	mV/ C
Zero Gate Voltage Drain Current	I_{DSS}	$V_{GS} = 0\text{ V}$, $V_{DS} = 40\text{ V}$	-	-	1.0	A
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS} = 0\text{ V}$, $V_{GS} = \pm 20\text{ V}$			± 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

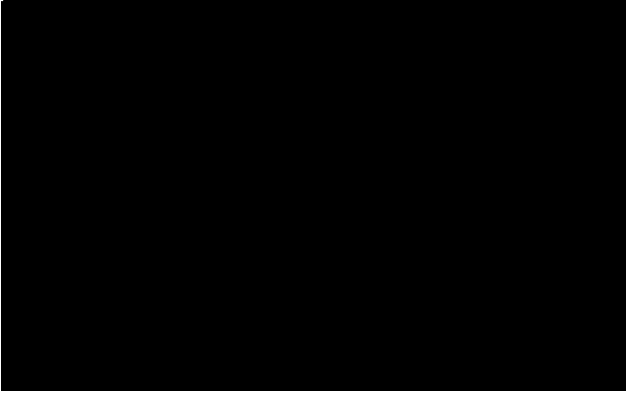


Figure 5 ID versus VDS for different temperatures (VGS = 10 V)



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

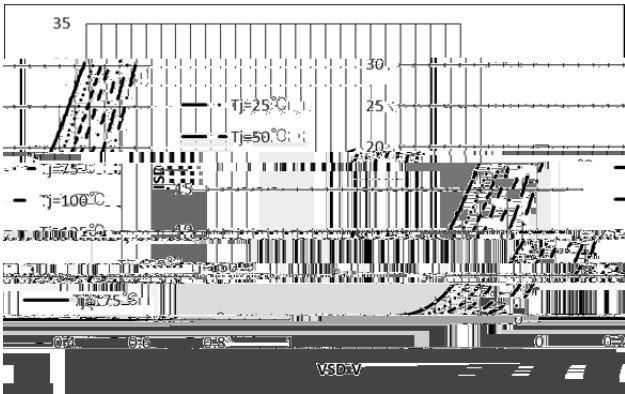


Figure 9 ISD versus VSD for different temperatures

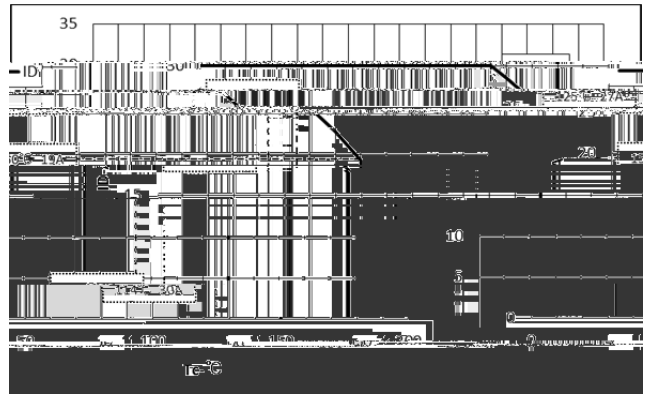


Figure 6 Switching losses versus gate resistance (Tj = 175 C, Id = 30 A, L = 40 nH)

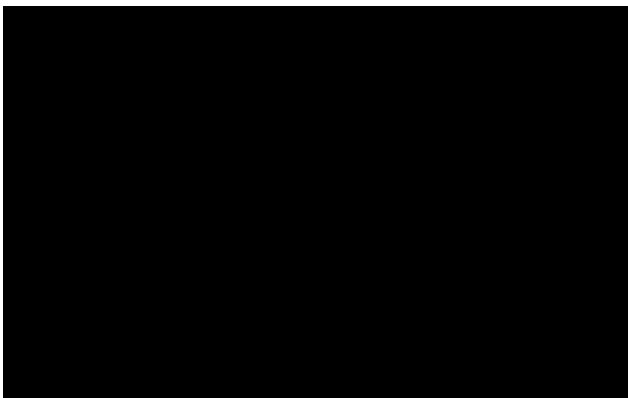


Figure 7 Switching losses versus drain current (Tj = 175 C, Id = 30 A, Rg = 51 Ω, L = 40 nH)

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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 μm Screw holes must be countersunk. No contamination on the heat sink surface that contacts IPM.

Torque

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PACKAGE DIMENSIONS

unit : mm

CASE MODBL
ISSUE A

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

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