

SMD Transformer / Automotive grade CEER117



Feature

- High isolation transformer for IGBT gate drive
- Low profile / Small floor space
- High power density / High withstand voltage
- Multiple cores available

Application

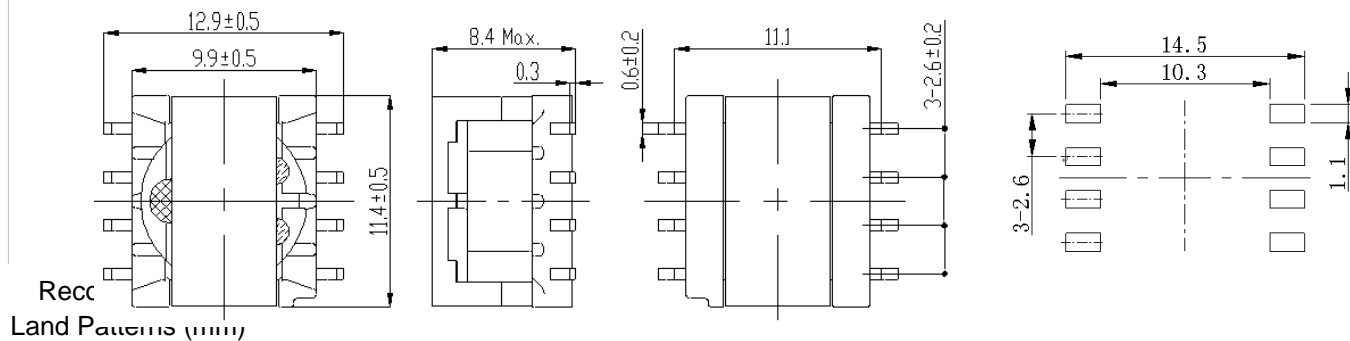
- Traction inverter for xEV/EV (Distributed type)
- Power supply for battery management system
- AUX power supply for MOSFET driver
- Commercial / Industrial and Medical equipment



Custom design Available

Dimensions (mm)

- Size (L x W x H): 13.4mm x 11.9mm x 8.4mm (Max)
- Number of terminals: 4/4 (Primary/Secondary)



Electrical characteristic (In general)

- Topology: Flyback converter
- Max. Operating frequency 500 kHz
- Operating Power 2.9W (@ 100 kHz), 5.6W (@ 250 kHz), 7.2W (@ 400 kHz)
- Withstand Voltage: 2.5kVrms/1min
- Operating temperature range : - 40°C~+ 125°C (**Including coil's self-temperature rise)

Reliability

- Comply with AEC-Q200
- RoHS 2 Compliance

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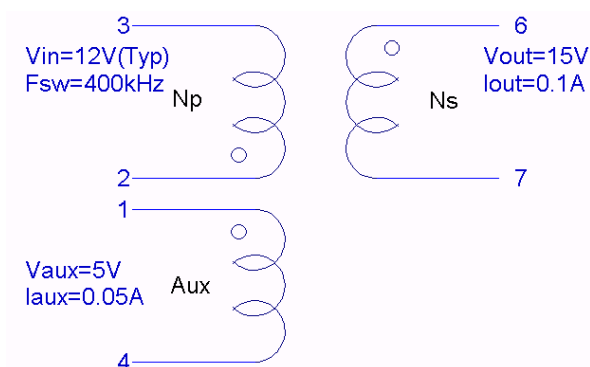


【IC reference 1】

Power supply for IGBT gate driver / Flyback transformer

- IC manufacture : ROHM
- IC part number
 - ✓ BM60051FV
 - ✓ BM60052AFV
 - ✓ BM60054AFV
 - ✓ BM60055FV
 - ✓ BM60056FV
 - ✓ BM60059FV-C
 - ✓ BM60060FV-C
- Sumida part number : CEER117-AX05-15-007

Schematic of transformer winding



ELECTRICAL CHARACTERISTICS(at 25°C)

ITEM	PIN	SPECIFICATION	MEASURING CONDITIONS
INDUCTANCE	(2-3)	7.2 μ H \pm 18% within	100kHz/1V
INDUCTANCE	(1-4)	13.8 μ H(Ref)	100kHz/1V
INDUCTANCE	(6-7)	120 μ H(Ref)	100kHz/1V
LEAKAGE INDUCTANCE	(2-3)	0.1 μ H(Ref)	100kHz/1V (Pin#1,4,6,7 Short)
Withstand voltage	(1,2,3,4)-(6,7)	AC2500V/1min	1mA, 50/60Hz

* OPERATING TEMPERATURE RANGE: -40°C~125°C . (INCLUDING TEMPERATURE RISE).

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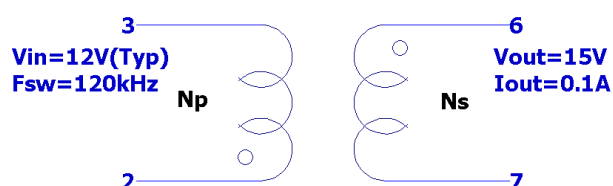


[IC reference 2]

Power supply for IGBT gate driver / Flyback transformer

- IC manufacture : Broadcom
- IC part number
✓ ACPL-32JT
- Sumida part number : CEER117-AX05-13-048

Schematic of transformer winding



ELECTRICAL CHARACTERISTICS(at 25°C)

ITEM	PIN	SPECIFICATION	MEASURING CONDITIONS
INDUCTANCE	(2-3)	59.0 μ H \pm 22% within	100kHz/1V
INDUCTANCE	(6-7)	240 μ H \pm 22% within	100kHz/1V
LEAKAGE INDUCTANCE	(2-3)	1.8 μ H(Max)	100kHz/1V (Pin#6,7 Short)
Withstand voltage	(2,3)-(6,7)	AC2500V/1min	1mA, 50/60Hz
Saturation current	(2-3)	1.1A	At 125°C
Temperature rise current	(2-3)	0.9A	

- * OPERATING TEMPERATURE RANGE: -40°C~125°C . (INCLUDING TEMPERATURE RISE).
- * Saturation current: This indicates the value of D.C current when the inductance becomes 10% lower than its initial value.
- * Temperature rise current: The value of D.C. current when the temperature of coil becomes $\Delta T=30^{\circ}\text{C}$.

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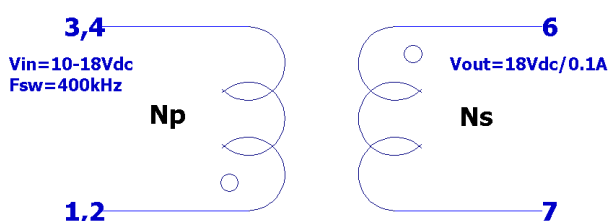


【IC Reference 3】

Power supply for SIC gate driver / Flyback transformer

- IC manufacture : ROHM
- IC part number
 - ✓ BD7F100EFJ-LB / Mainly Industrial use
- Sumida part number
 - ✓ 15318-T131
 - ✓ 15318-T140
 - ✓ 15318-T148
 - ✓ 15318-T154

Schematic of transformer winding (e.g:15318-T131)



ELECTRICAL CHARACTERISTICS(at 25°C)

ITEM	PIN	SPECIFICATION	MEASURING CONDITIONS
INDUCTANCE	(1,2-3,4)	23.0μH±25% within	100kHz/1V
INDUCTANCE	(6-7)	155μH(Ref)	100kHz/1V
LEAKAGE INDUCTANCE	(1,2-3,4)	0.16uH(Ref)	100kHz/1V (Pin#6,7 Short)
DCR	(1,2-3,4)	125mΩ ±25% within	
DCR	(6-7)	640mΩ (Ref)	
Withstand voltage	(2,3)-(6,7)	AC2500V/1min	1mA, 50/60Hz

* OPERATING TEMPERATURE RANGE: -40°C~125°C . (INCLUDING TEMPERATURE RISE).



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