features

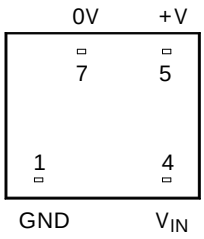
- High Efficiency for Low Power Applications
- Pin Compatible with NME & NML
- 1kVDC Isolation
- SIP & DIP Package Styles
- Single Output Rail
- Power Density 0.36W/cm^3
- 3.3V, 5V and 12V Input
- 3.3V, 5V, 9V, 12V and 15V Output
- Footprint from 0.69cm^2
- UL 94V-0 Package Material
- No Heatsink Required
- Internal SMD Construction
- Toroidal Magnetics
- Fully Encapsulated
- No External Components Required
- MTTF up to 3.2 Million Hours
- PCB Mounting
- Custom Solutions Available

description

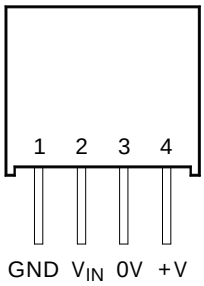
The LME series of DC-DC converters are optimised for low-power operation. Due to the low quiescent current they are able to offer efficiencies up to 75%. The use of advanced magnetics ensures a minimal quiescent current of around 2.5mA which ensures that efficiency is maximised in low power applications. They are ideally suited to generating a negative supply where only a positive rail exists.

pin connections

8 Pin DIP (top view)



4 Pin SIP



absolute maximum ratings over operating free air* temperature range

Input voltage V_{IN} LME03 types 5V
Input voltage V_{IN} LME05 types 7V
Input voltage V_{IN} LME12 types 15V
Output power total 250mW
Short circuit duration 1s
Isolation voltage (flash tested for 1 second) 1000VDC
Operating free air temperature range . . . . . 0°C to 70°C[1]
Storage temperature range . . . . . –55°C to 150°C
Lead temperature 1.5mm from case for 10 seconds . . . . . 300°C

electrical specifications

(measured at $T_A = 25°C$, at nominal input voltage)

Input voltage range LME03 types . . . . . 3.3V±10%
Input voltage range LME05 types . . . . . 5V±10%
Input voltage range LME12 types . . . . . 12V±10%
Load voltage regulation (10% to 100% full load)
  3.3V and 5V output types . . . . . 15% max.
  9V, 12V and 15V output types . . . . . 10% max.
Line voltage regulation (10% to 100% full load) . . . . . 1.2%/1% of V_{IN}
Output voltage accuracy . . . . . See tolerance envelope graph
Input reflected ripple (20MHz Band limited)
  LME03 types . . . . . 50mV p-p max.
  LME05 and 12 types . . . . . 40mV p-p max.
Output ripple (20MHz Band limited)
  LME03 types . . . . . 75mV p-p max.
  LME05 and 12 types . . . . . 100mV p-p max.
Insulation resistance at 500VDC . . . . . 1000 MΩ min.
Efficiency at full load, 3.3V and 5V output types . . . . . 70% typical 60% min.
Efficiency at full load, 9V, 12V and 15V output types . . . . . 75% typical 70% min.

* Free air – requires a minimum of 10mm air space around the component.

1 See derating curve.

electrical specifications

(measured at T_A = 25°C, at nominal input voltage)

Temperature drift (V_{OUT}) . . . . . 0.03% per °C max.
Temperature rise above ambient at full load . . . . . 10°C max.
Weight SIP types (typical) . . . . . 1.4 grams
Weight DIP types (typical) . . . . . 1.5 grams
Switching frequency at full load (typical) 100kHz
No load power consumption (typical), LME03 types 50mW
No load power consumption (typical), LME05 and 12 types 30mW

selection guide

3.3V, 5V and 12V input types

Part Number	Output Voltage (V)	Output Current (mA)	Package Style
LMEXX05D	5	50	1
LMEXX09D	9	28	
LMEXX12D	12	21	
LMEXX15D	15	16	
LMEXX05S	5	50	2
LMEXX09S	9	28	
LMEXX12S	12	21	
LMEXX15S	15	16	

LME SERIES

Isolated 250mW Single Output

selection guide

L ME 0 5 0 3

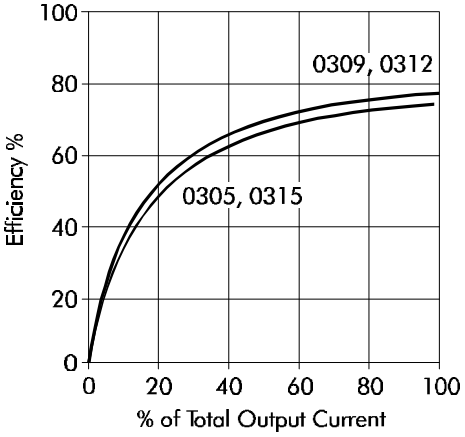
Part Number	Output Voltage (V)	Output Current (mA)	Package Style
LME0503D	3.3	76	1
LME0503S			2

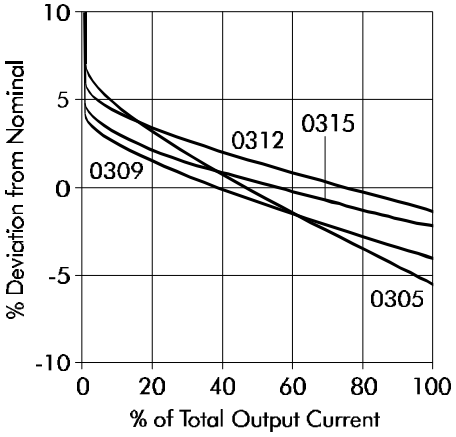
typical isolation capacitance (pF)

Part Number	Output Voltage (V)				
	03	05	09	12	15
LME03XX	–	25	30	38	38
LME05XX	25	29	37	41	40
LME12XX	–	38	40	43	45

typical characteristics

L ME 0 3 s er i es

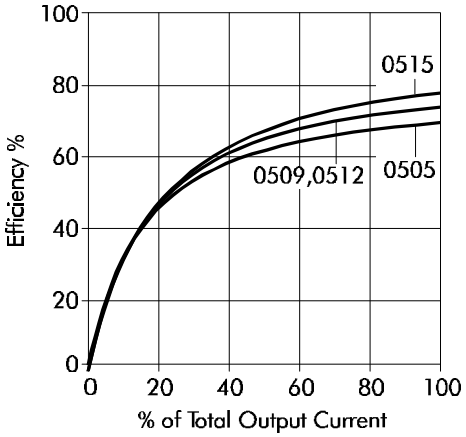


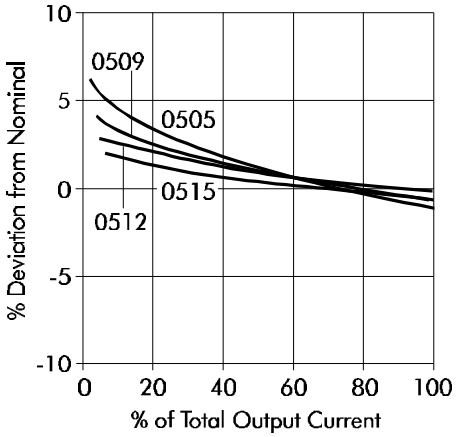


Note : All data taken at T_A = 25°C.

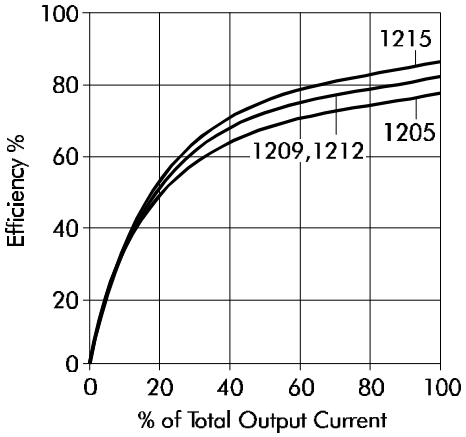
typical characteristics

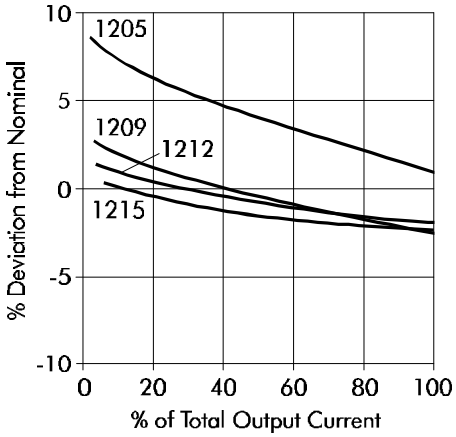
LME05 series



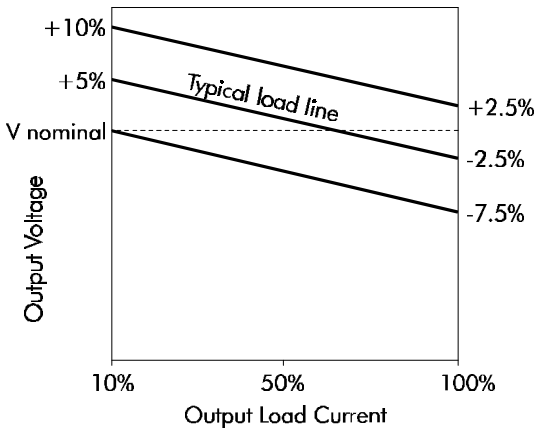


LME12 series

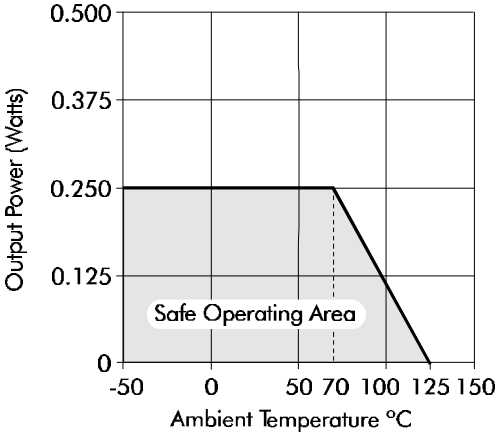




tolerance envelope



temperature



Note : All data taken at $T_A = 25°C$.

See application notes on page 2-132

mean time to failure (MTTF) in thousands of hours

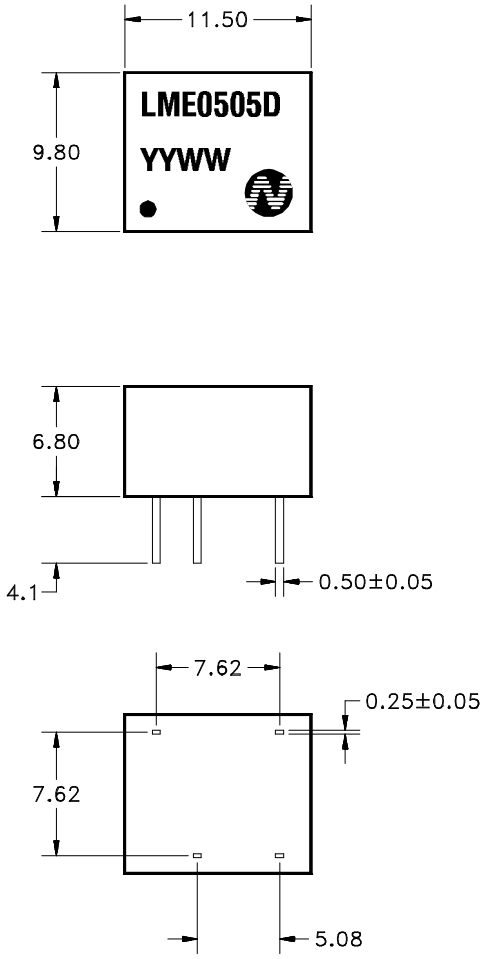
Part Number	–25°C	25°C	70°C
LME0305	3293	2767	2319
LME0309	1459	1250	1077
LME0312	759	655	571
LME0315	424	367	321
LME0503	3145	2637	2204
LME0505	2660	2279	1940
LME0509	1320	1139	988
LME0512	720	624	545
LME0515	411	357	313
LME1205	619	536	468
LME1209	501	434	380
LME1212	380	330	289
LME1215	273	237	208

Note : MTTF figures derived from hybrid model of MIL-HDBK-217F.

outline dimensions

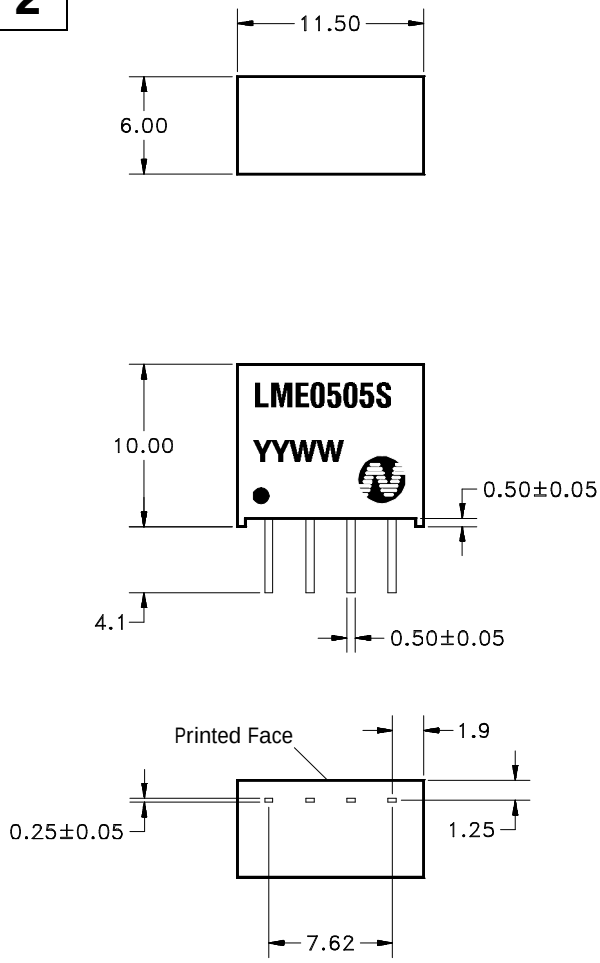
8 Pin DIP package style

1

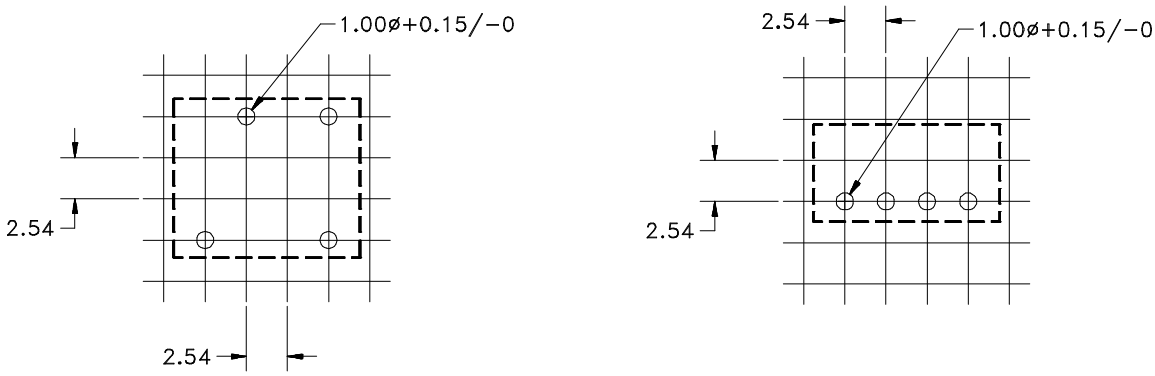


4 Pin SIP package style

2



recommended foot print details



All pins on a 2.54mm pitch.