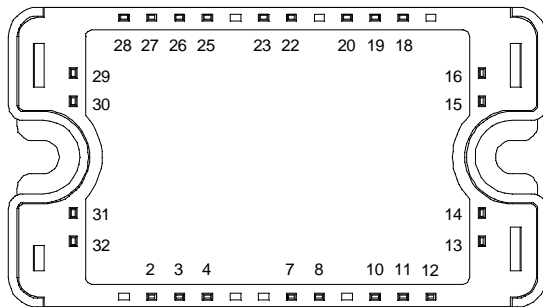
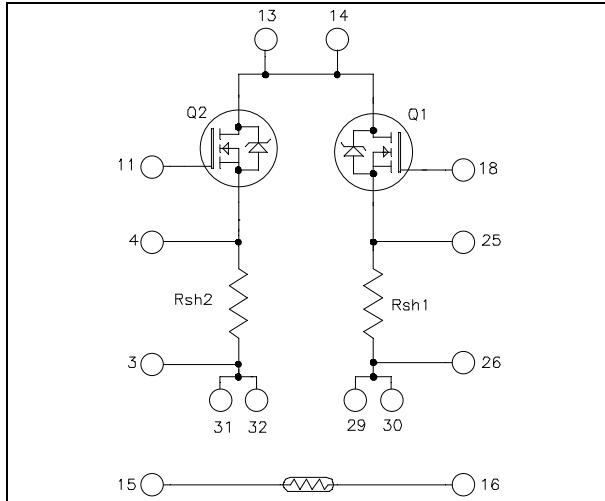


Linear MOSFET Power Module

$$V_{DSS} = 200V$$

$$R_{DSon} = 18m\Omega \text{ typ @ } T_j = 25^\circ C$$

$$I_D = 109A^* \text{ @ } T_c = 25^\circ C$$



Pins 13/14 ; 29/30 ; 31/32 must be shorted together

Application

- Electronic load dedicated to power supplies and battery discharge testing

Features

- Linear MOSFET
- Very low stray inductance
- Internal thermistor for temperature monitoring
- High level of integration
- AlN substrate for improved thermal performance

Benefits


- Direct mounting to heatsink (isolated package)
- easy series and parallels combinations for power and voltage improvements
- Low junction to case thermal resistance
- Solderable terminals both for power and signal for easy PCB mounting
- Low profile
- RoHS Compliant

Absolute maximum ratings (per leg)

Symbol	Parameter	Max ratings	Unit
V_{DSS}	Drain - Source Breakdown Voltage	200	V
I_D	Continuous Drain Current	$T_c = 25^\circ C$	109*
		$T_c = 80^\circ C$	81*
I_{DM}	Pulsed Drain current	400	A
V_{GS}	Gate - Source Voltage	± 30	V
R_{DSon}	Drain - Source ON Resistance	19	m Ω
P_D	Maximum Power Dissipation ❶	$T_c = 25^\circ C$	480
I_{AR}	Avalanche current (repetitive and non repetitive)	100	A
E_{AR}	Repetitive Avalanche Energy	50	mJ
E_{AS}	Single Pulse Avalanche Energy	3000	

* Output current per leg must be limited to 44A @ $T_c=25^\circ C$ and 31A @ $T_c=80^\circ C$ to not exceed the shunt specification.

❶ In saturation mode

 **CAUTION:** These Devices are sensitive to Electrostatic Discharge. Proper Handling Procedures Should Be Followed. See application note APT0502 on www.microsemi.com



All ratings @ $T_j = 25^\circ\text{C}$ unless otherwise specified

Electrical Characteristics (per leg)

Symbol	Characteristic	Test Conditions	Min	Typ	Max	Unit
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 200V ; V _{GS} = 0V T _j = 25°C			25	μA
		V _{DS} = 160V ; V _{GS} = 0V T _j = 125°C			250	
R _{DS(on)}	Drain – Source on Resistance	V _{GS} = 10V, I _D = 50A		18	19	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{GS} = V _{DS} , I _D = 2.5mA	2		4	V
I _{GSS}	Gate – Source Leakage Current	V _{GS} = ±30 V			±100	nA

Dynamic Characteristics (per leg)

Symbol	Characteristic	Test Conditions	Min	Typ	Max	Unit
C _{iss}	Input Capacitance	V _{GS} = 0V V _{DS} = 25V f = 1MHz		9880		pF
C _{oss}	Output Capacitance			2320		
C _{rss}	Reverse Transfer Capacitance			700		

Shunt Electrical Characteristics (per leg)

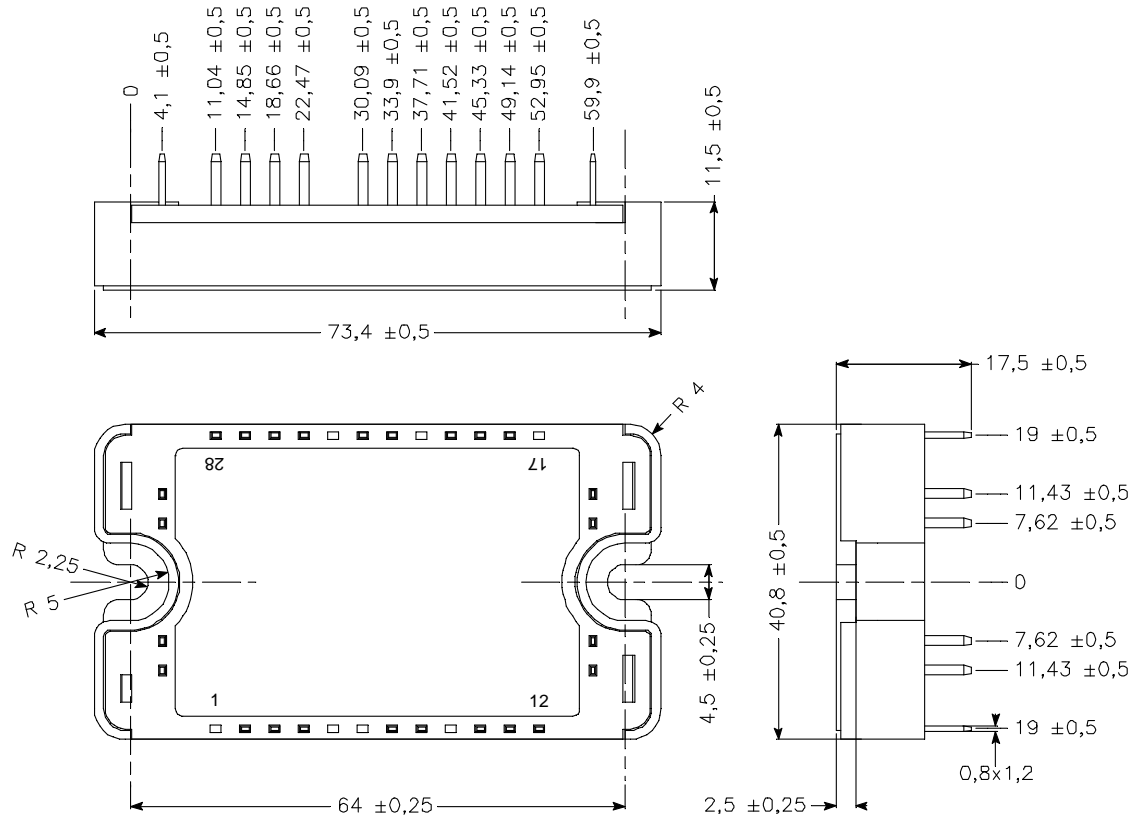
Symbol	Characteristic	Test Conditions	Min	Typ	Max	Unit
R _{sh}	Resistance value			10		mΩ
T _{sh}	Tolerance			2		%
P _{sh}	Load capacity	T _C =25°C			20	W
		T _C =80°C			10	
I _{sh}	Current capacity	T _C =25°C			44	A
		T _C =80°C			31	

Temperature sensor PTC

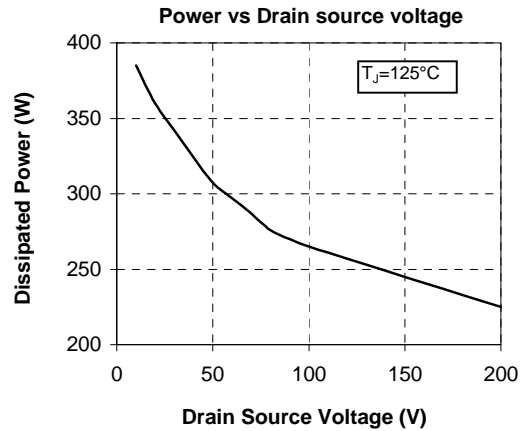
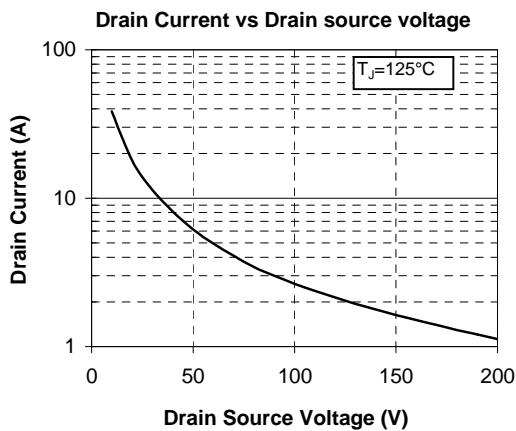
Symbol	Characteristic	Test Conditions	Min	Typ	Max	Unit
R ₂₅	Resistance @ 25°C		1980		2020	Ω
R ₁₀₀ /R ₂₅	Resistance ratio	T _{amb} =100°C & 25°C	1.676	1.696	1.716	
R ₅₅ /R ₂₅	Resistance ratio	T _{amb} =-55°C & 25°C	0.48	0.49	0.50	
B	Temperature coefficient			7900		ppm/K

Thermal and package characteristics

Symbol	Characteristic	Test Conditions	Min	Typ	Max	Unit
R _{thJC}	Junction to Case Thermal Resistance	MOSFET (per leg)			0.26	°C/W
V _{ISOL}	RMS Isolation Voltage, any terminal to case t =1 min, I _{isol} <1mA, 50/60Hz		4000			V
T _J	Operating junction temperature range		-40		150	°C
T _{STG}	Storage Temperature Range		-40		125	
T _C	Operating Case Temperature		-40		100	
Torque	Mounting torque	To heatsink M4	2.5		4.7	N.m
Wt	Package Weight				110	g

SP3 Package outline (dimensions in mm)


See application note 1901 - Mounting Instructions for SP3 Power Modules on www.microsemi.com

Typical Performance Curve (linear mode) (per leg)


Microsemi reserves the right to change, without notice, the specifications and information contained herein

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