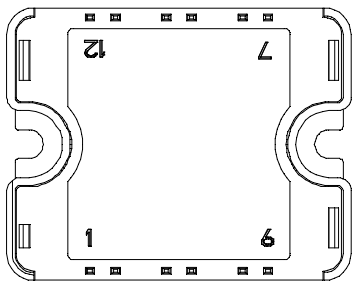
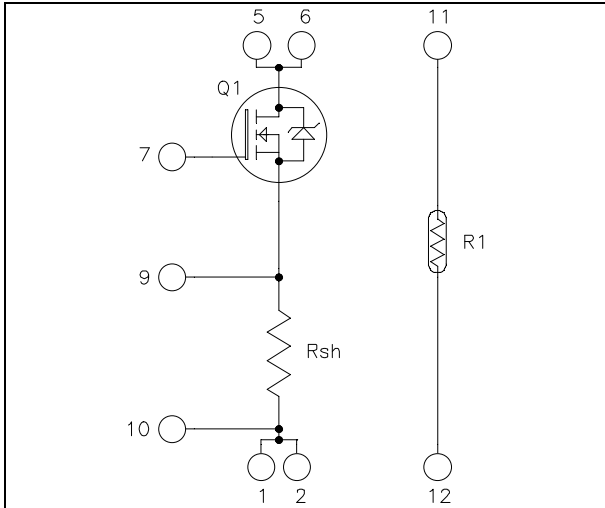




**Linear MOSFET
Power Module**

$V_{DSS} = 100V$
 $R_{DSon} = 09m\Omega$ typ @ $T_j = 25^\circ C$
 $I_D = 154A^*$ @ $T_c = 25^\circ C$



Pins 1/2 ; 5/6 must be shorted together

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Absolute maximum ratings

Symbol	Parameter	Max ratings	Unit
V_{DSS}	Drain - Source Breakdown Voltage	100	V
I_D	Continuous Drain Current	$T_c = 25^\circ C$	154*
		$T_c = 80^\circ C$	115*
I_{DM}	Pulsed Drain current	430	A
V_{GS}	Gate - Source Voltage	± 30	V
R_{DSon}	Drain - Source ON Resistance	10	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 must be limited to 67A @ $T_c=25^\circ C$ and 47A @ $T_c=80^\circ C$ 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

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



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

Electrical Characteristics

Symbol	Characteristic	Test Conditions	Min	Typ	Max	Unit
I _{DSS}	Zero Gate Voltage Drain Current	V _{GS} = 0V, V _{DS} = 100V T _j = 25°C			100	μA
		V _{GS} = 0V, V _{DS} = 80V T _j = 125°C			500	
R _{DS(on)}	Drain – Source on Resistance	V _{GS} = 10V, I _D = 69.5A		9	10	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, V _{DS} = 0V			±100	nA

Dynamic Characteristics

Symbol	Characteristic	Test Conditions	Min	Typ	Max	Unit
C _{iss}	Input Capacitance	V _{GS} = 0V V _{DS} = 25V f = 1MHz		9875		pF
C _{oss}	Output Capacitance			3940		
C _{rss}	Reverse Transfer Capacitance			1470		

Shunt Electrical Characteristics

Symbol	Characteristic	Min	Typ	Max	Unit
R _{sh}	Resistance value		4.4		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		67	A
		T _C =80°C		47	

Temperature sensor PTC

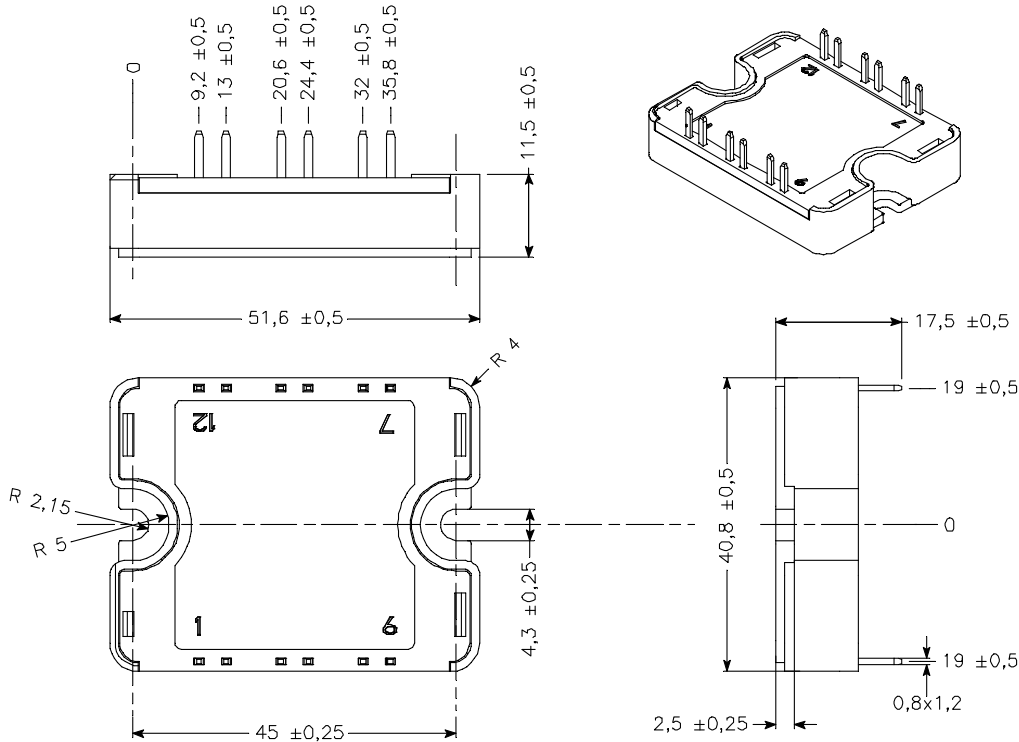
Symbol	Characteristic	Min	Typ	Max	Unit	
R ₂₅	Resistance @ 25°C	1980		2020	Ω	
R ₁₀₀ /R ₂₅	Resistance ratio	T _{amb} =100°C & 25°C		1.676	1.696	1.716
R ₅₅ /R ₂₅	Resistance ratio	T _{amb} =-55°C & 25°C		0.48	0.49	0.50
B	Temperature coefficient		7900		ppm/K	

Thermal and package characteristics

Symbol	Characteristic	Min	Typ	Max	Unit	
R _{thJC}	Junction to Case Thermal Resistance	MOSFET		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			80		g

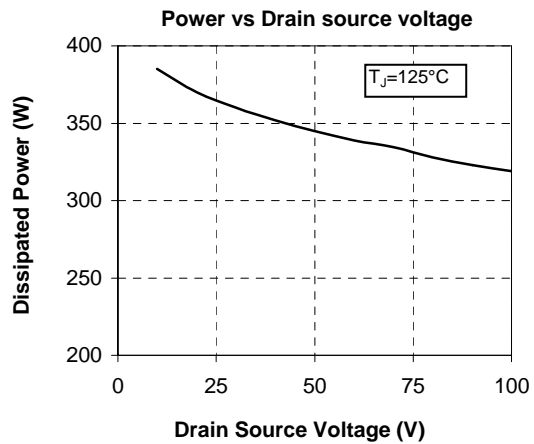
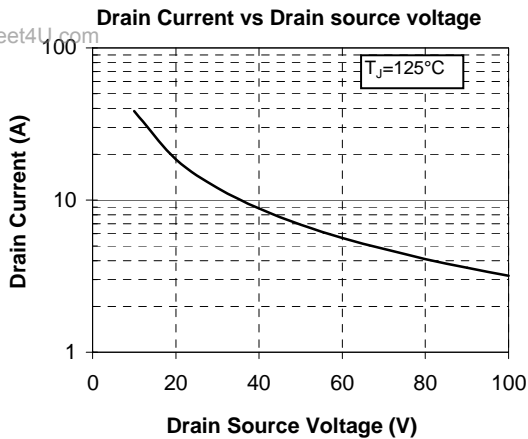


SP1 Package outline (dimensions in mm)



See application note 1904 - Mounting Instructions for SP1 Power Modules on www.microsemi.com

Typical Performance Curve (linear mode)



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Microsemi's products are covered by one or more of U.S patents 4,895,810 5,045,903 5,089,434 5,182,234 5,019,522 5,262,336 6,503,786 5,256,583 4,748,103 5,283,202 5,231,474 5,434,095 5,528,058 6,939,743 7,352,045 5,283,201 5,801,417 5,648,283 7,196,634 6,664,594 7,157,886 6,939,743 7,342,262 and foreign patents. U.S and Foreign patents pending. All Rights Reserved.