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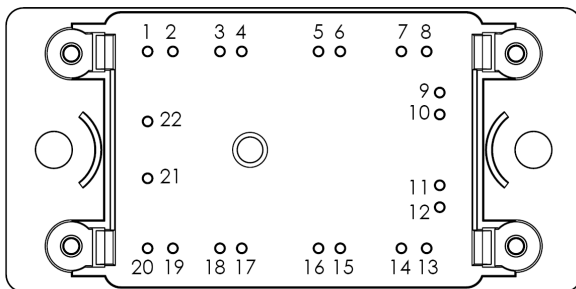
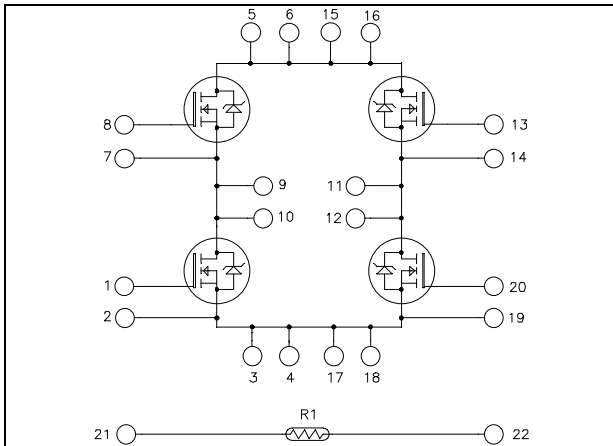
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**Full bridge
Super Junction MOSFET
Power Module**

$V_{DSS} = 600V$
 $R_{DSon} = 83m\Omega \text{ max @ } T_j = 25^\circ C$
 $I_D = 36A \text{ @ } T_c = 25^\circ C$



Pins 5/6/15/16 ; 3/4/17/18 ; 9/10 ; 11/12 must be shorted together

Application

- Welding converters
- Switched Mode Power Supplies
- Uninterruptible Power Supplies
- Motor control

Features

- CoolMOST™
 - Ultra low R_{DSon}
 - Low Miller capacitance
 - Ultra low gate charge
 - Avalanche energy rated
 - Fast intrinsic diode
 - Very rugged
- Very low stray inductance
- Internal thermistor for temperature monitoring
- High level of integration

Benefits

- Outstanding performance at high frequency operation
- Direct mounting to heatsink (isolated package)
- Low junction to case thermal resistance
- Solderable terminals both for power and signal for easy PCB mounting
- Low profile
- RoHS Compliant

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

Absolute maximum ratings (per CoolMOST™)

Symbol	Parameter	Max ratings	Unit
V_{DSS}	Drain - Source Breakdown Voltage	600	V
I_D	Continuous Drain Current	$T_c = 25^\circ C$	36
		$T_c = 80^\circ C$	27
I_{DM}	Pulsed Drain current	100	A
V_{GS}	Gate - Source Voltage	± 20	V
R_{DSon}	Drain - Source ON Resistance	83	$m\Omega$
P_D	Maximum Power Dissipation	$T_c = 25^\circ C$	250
I_{AR}	Avalanche current (repetitive and non repetitive)	20	A
E_{AR}	Repetitive Avalanche Energy	1	mJ
E_{AS}	Single Pulse Avalanche Energy	1800	

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

Electrical Characteristics (per CoolMOST™)

Symbol	Characteristic	Test Conditions	Min	Typ	Max	Unit
I _{DSS}	Zero Gate Voltage Drain Current	V _{GS} = 0V, V _{DS} = 600V			50	μA
		T _j = 25°C				
		V _{GS} = 0V, V _{DS} = 600V			5	mA
		T _j = 125°C				
R _{DS(on)}	Drain – Source on Resistance	V _{GS} = 10V, I _D = 18A			83	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{GS} = V _{DS} , I _D = 3mA	3	4	5	V
I _{GSS}	Gate – Source Leakage Current	V _{GS} = ±20 V, V _{DS} = 0V			±100	nA

Dynamic Characteristics (per CoolMOST™)

Symbol	Characteristic	Test Conditions	Min	Typ	Max	Unit
C _{iss}	Input Capacitance	V _{GS} = 0V		7290		pF
C _{oss}	Output Capacitance	V _{DS} = 25V		1735		
C _{rss}	Reverse Transfer Capacitance	f = 1MHz		41		
Q _g	Total gate Charge	V _{GS} = 10V		255		nC
Q _{gs}	Gate – Source Charge	V _{Bus} = 300V		43		
Q _{gd}	Gate – Drain Charge	I _D = 36A		135		
T _{d(on)}	Turn-on Delay Time	Inductive Switching @ 125°C V _{GS} = 15V V _{Bus} = 400V I _D = 36A R _G = 5Ω		21		ns
T _r	Rise Time			30		
T _{d(off)}	Turn-off Delay Time			240		
T _f	Fall Time			52		
E _{off}	Turn-off Switching Energy	Inductive switching V _{GS} = 15V, I _D = 36A R _G = 5Ω, V _{Bus} = 400V	T _j = 25°C		590	μJ
E _{off}	Turn-off Switching Energy		T _j = 125°C		725	
R _{thJC}	Junction to Case Thermal Resistance				0.5	°C/W

Source - Drain diode ratings and characteristics (per CoolMOST™)

Symbol	Characteristic	Test Conditions	Min	Typ	Max	Unit
I _S	Continuous Source current (Body diode)		T _c = 25°C		36	A
			T _c = 80°C		27	
V _{SD}	Diode Forward Voltage	V _{GS} = 0V, I _S = - 36A			1.2	V
dv/dt	Peak Diode Recovery				40	V/ns
t _{rr}	Reverse Recovery Time	I _S = - 36A V _R = 400V			350	ns
Q _{rr}	Reverse Recovery Charge	di _S /dt = 200A/μs			5.4	μC

Temperature sensor NTC

Symbol	Characteristic	Min	Typ	Max	Unit
R ₂₅	Resistance @ 25°C		22		kΩ
ΔR ₂₅ /R ₂₅	Resistance tolerance			5	%
ΔB/B	Beta tolerance			3	
B _{25/100}	T ₂₅ = 298.16 K		3980		K

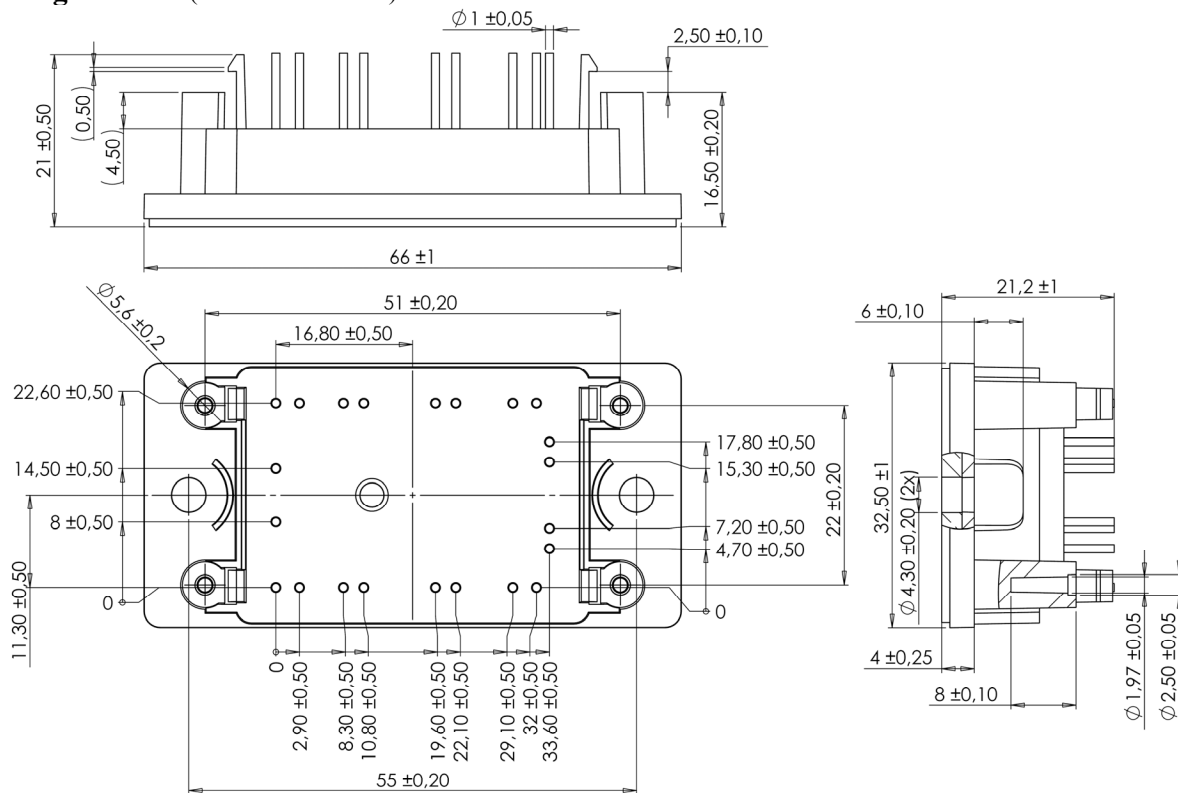
$$R_T = \frac{R_{25}}{\exp\left[B_{25/100}\left(\frac{1}{T_{25}} - \frac{1}{T}\right)\right]}$$

T: Thermistor temperature
 R_T: Thermistor value at T

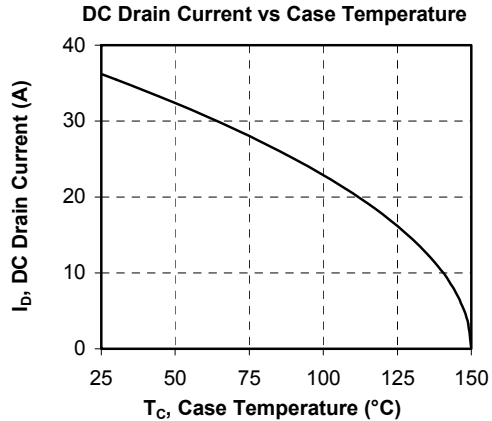
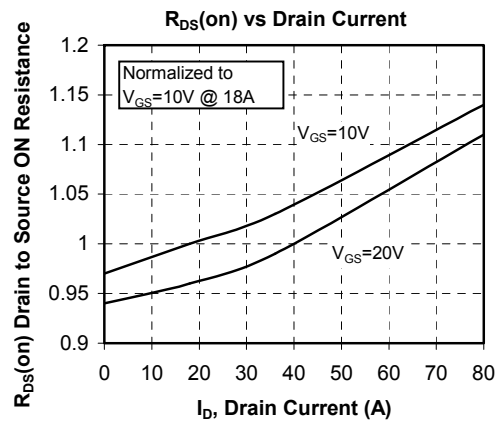
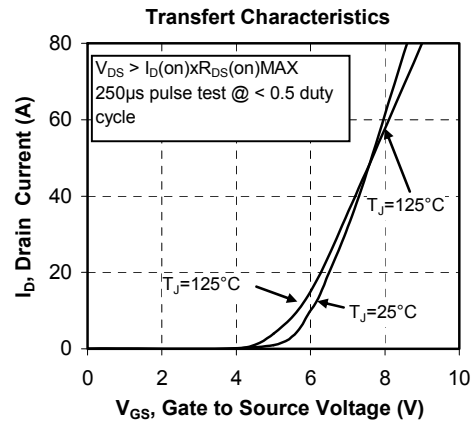
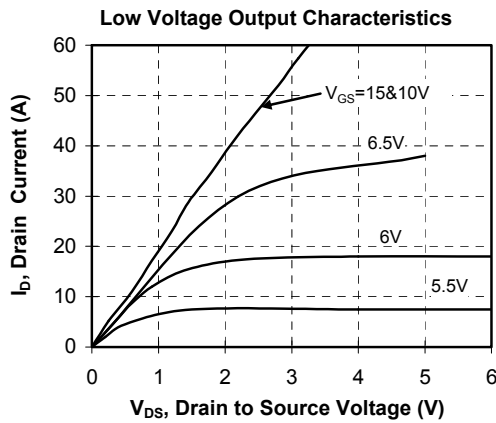
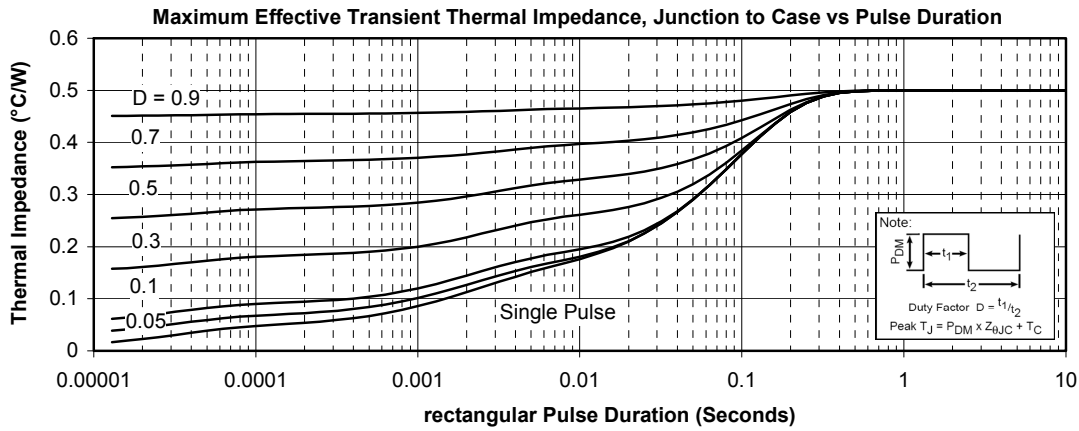
Thermal and package characteristics

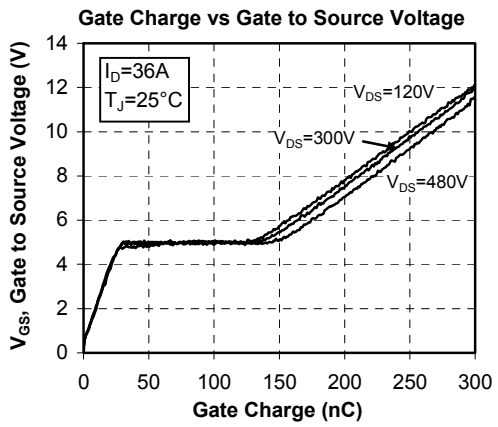
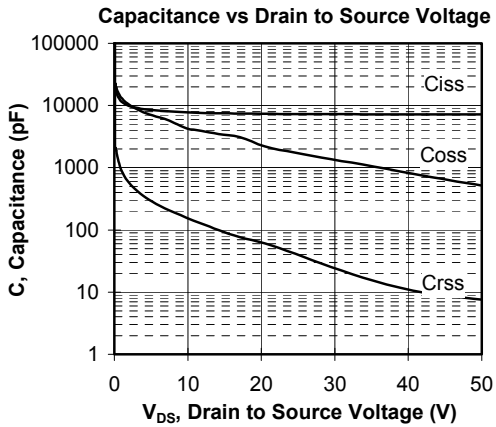
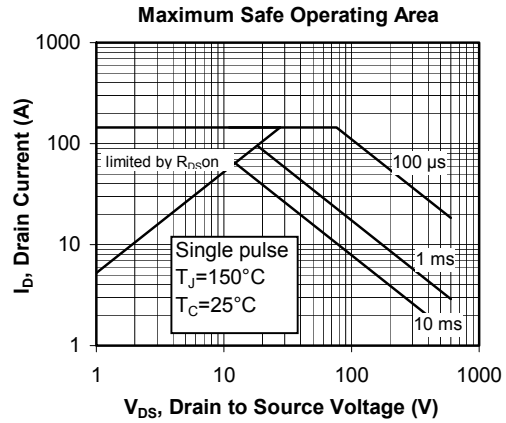
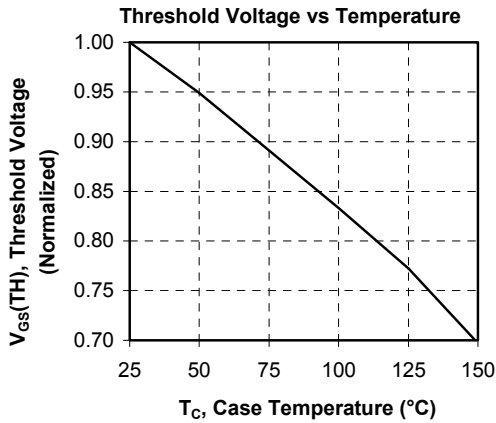
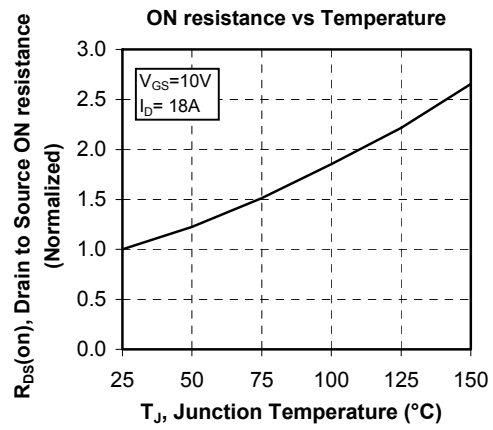
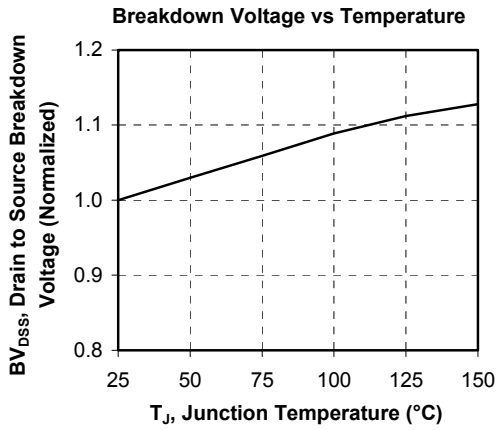
Symbol	Characteristic	Min	Typ	Max	Unit	
V _{ISOL}	RMS Isolation Voltage, any terminal to case t=1 min, 50/60Hz	4000			V	
T _J	Operating junction temperature range	-40		150	°C	
T _{STG}	Storage Temperature Range	-40		125		
T _C	Operating Case Temperature	-40		100		
Torque	Mounting torque	To heatsink	M4	2	3	N.m
Wt	Package Weight				75	g

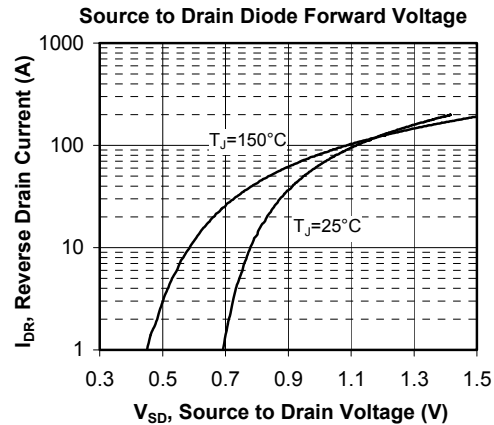
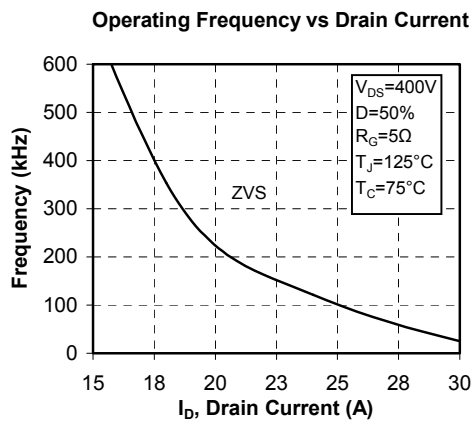
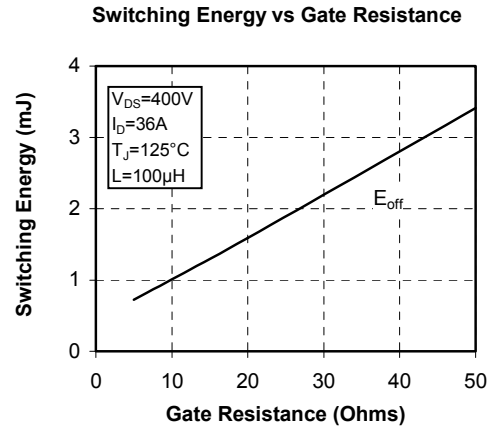
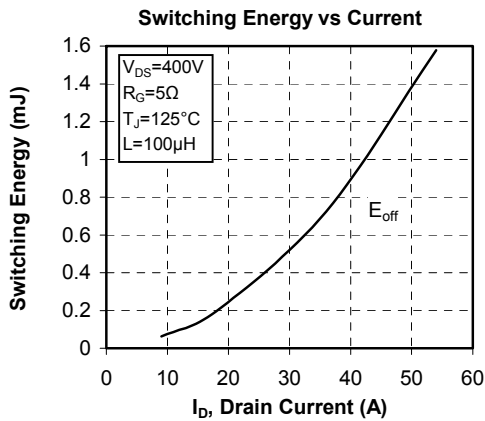
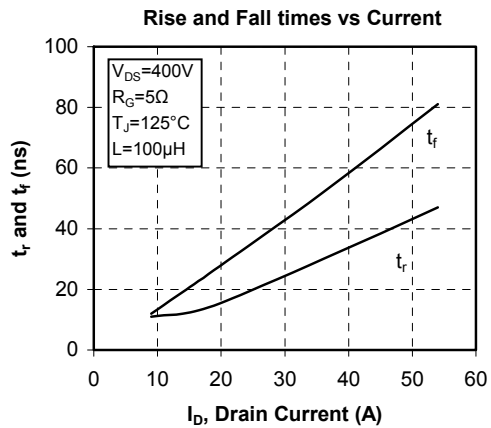
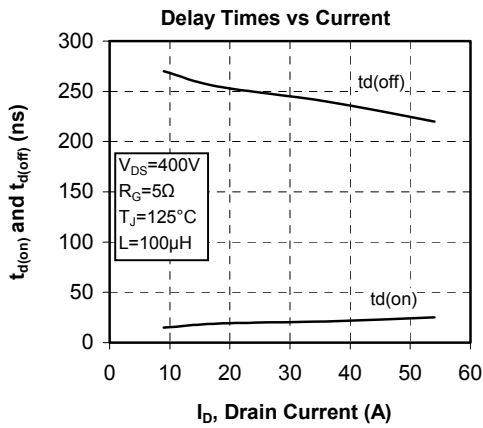
Package outline (dimensions in mm)



Typical Performance Curve (per CoolMOS™)







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