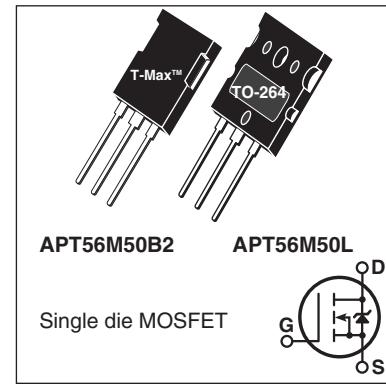


N-Channel MOSFET

Power MOS 8™ is a high speed, high voltage N-channel switch-mode power MOSFET. A proprietary planar stripe design yields excellent reliability and manufacturability. Low switching loss is achieved with low input capacitance and ultra low C_{rss} "Miller" capacitance. The intrinsic gate resistance and capacitance of the poly-silicon gate structure help control slew rates during switching, resulting in low EMI and reliable paralleling, even when switching at very high frequency. Reliability in flyback, boost, forward, and other circuits is enhanced by the high avalanche energy capability.



FEATURES

- Fast switching with low EMI/RFI
- Low $R_{DS(on)}$
- Ultra low C_{rss} for improved noise immunity
- Low gate charge
- Avalanche energy rated
- RoHS compliant 

TYPICAL APPLICATIONS

- PFC and other boost converter
- Buck converter
- Two switch forward (asymmetrical bridge)
- Single switch forward
- Flyback
- Inverters

Absolute Maximum Ratings

Symbol	Parameter	Ratings	Unit
I_D	Continuous Drain Current @ $T_C = 25^\circ\text{C}$	56	A
	Continuous Drain Current @ $T_C = 100^\circ\text{C}$	35	
I_{DM}	Pulsed Drain Current ^①	175	
V_{GS}	Gate-Source Voltage	± 30	V
E_{AS}	Single Pulse Avalanche Energy ^②	1200	mJ
I_{AR}	Avalanche Current, Repetitive or Non-Repetitive	28	A

Thermal and Mechanical Characteristics

Symbol	Characteristic	Min	Typ	Max	Unit
P_D	Total Power Dissipation @ $T_C = 25^\circ\text{C}$			780	W
$R_{\theta JC}$	Junction to Case Thermal Resistance			0.16	°C/W
$R_{\theta CS}$	Case to Sink Thermal Resistance, Flat, Greased Surface		0.11		
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55		150	°C
T_L	Soldering Temperature for 10 Seconds (1.6mm from case)			300	
W_T	Package Weight		0.22		oz
			6.2		g
Torque	Mounting Torque (TO-264 Package), 4-40 or M3 screw			10	in-lbf
				1.1	N·m

Static Characteristics

$T_J = 25^\circ\text{C}$ unless otherwise specified

APT56M50B2_L

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
$V_{BR(DSS)}$	Drain-Source Breakdown Voltage	$V_{GS} = 0\text{V}$, $I_D = 250\mu\text{A}$	500			V
$\Delta V_{BR(DSS)}/\Delta T_J$	Breakdown Voltage Temperature Coefficient	Reference to 25°C , $I_D = 250\mu\text{A}$		0.60		$\text{V}/^\circ\text{C}$
$R_{DS(on)}$	Drain-Source On Resistance ^③	$V_{GS} = 10\text{V}$, $I_D = 28\text{A}$		0.085	0.10	Ω
$V_{GS(th)}$	Gate-Source Threshold Voltage	$V_{GS} = V_{DS}$, $I_D = 2.5\text{mA}$	3	4	5	V
$\Delta V_{GS(th)}/\Delta T_J$	Threshold Voltage Temperature Coefficient			-10		$\text{mV}/^\circ\text{C}$
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = 500\text{V}$			100	μA
		$V_{GS} = 0\text{V}$			500	
I_{GSS}	Gate-Source Leakage Current	$V_{GS} = \pm 30\text{V}$			± 100	nA

Dynamic Characteristics

$T_J = 25^\circ\text{C}$ unless otherwise specified

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
g_{fs}	Forward Transconductance	$V_{DS} = 50\text{V}$, $I_D = 28\text{A}$		43		S
C_{iss}	Input Capacitance	$V_{GS} = 0\text{V}$, $V_{DS} = 25\text{V}$ $f = 1\text{MHz}$		8800		pF
C_{rss}	Reverse Transfer Capacitance			120		
C_{oss}	Output Capacitance			945		
$C_{o(cr)}^{\text{④}}$	Effective Output Capacitance, Charge Related	$V_{GS} = 0\text{V}$, $V_{DS} = 0\text{V}$ to 333V		550		pF
$C_{o(er)}^{\text{⑤}}$	Effective Output Capacitance, Energy Related			275		
Q_g	Total Gate Charge	$V_{GS} = 0$ to 10V , $I_D = 28\text{A}$, $V_{DS} = 250\text{V}$		220		nC
Q_{gs}	Gate-Source Charge			50		
Q_{gd}	Gate-Drain Charge			100		
$t_{d(on)}$	Turn-On Delay Time	Resistive Switching $V_{DD} = 333\text{V}$, $I_D = 28\text{A}$ $R_G = 4.7\Omega^{\text{⑥}}$, $V_{GG} = 15\text{V}$		38		ns
t_r	Current Rise Time			45		
$t_{d(off)}$	Turn-Off Delay Time			100		
t_f	Current Fall Time			33		

Source-Drain Diode Characteristics

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
I_s	Continuous Source Current (Body Diode)	MOSFET symbol showing the integral reverse p-n junction diode (body diode)			56	A
I_{SM}	Pulsed Source Current (Body Diode) ^①				175	
V_{SD}	Diode Forward Voltage	$I_{SD} = 28\text{A}$, $T_J = 25^\circ\text{C}$, $V_{GS} = 0\text{V}$			1	V
t_{rr}	Reverse Recovery Time	$I_{SD} = 28\text{A}^{\text{③}}$ $dI_{SD}/dt = 100\text{A}/\mu\text{s}$, $T_J = 25^\circ\text{C}$		660		ns
Q_{rr}	Reverse Recovery Charge			13.2		
dv/dt	Peak Recovery dv/dt	$I_{SD} \leq 28\text{A}$, $di/dt \leq 1000\text{A}/\mu\text{s}$, $V_{DD} = 333\text{V}$, $T_J = 125^\circ\text{C}$			8	V/ns

① Repetitive Rating: Pulse width and case temperature limited by maximum junction temperature.

② Starting at $T_J = 25^\circ\text{C}$, $L = 3.06\text{mH}$, $R_G = 4.7\Omega$, $I_{AS} = 28\text{A}$.

③ Pulse test: Pulse Width < $380\mu\text{s}$, duty cycle < 2%.

④ $C_{o(cr)}$ is defined as a fixed capacitance with the same stored charge as C_{oss} with $V_{DS} = 67\%$ of $V_{(BR)DSS}$.

⑤ $C_{o(er)}$ is defined as a fixed capacitance with the same stored energy as C_{oss} with $V_{DS} = 67\%$ of $V_{(BR)DSS}$. To calculate $C_{o(er)}$ for any value of V_{DS} less than $V_{(BR)DSS}$, use this equation: $C_{o(er)} = -2.04E-7/V_{DS}^2 + 4.76E-8/V_{DS} + 1.36E-10$.

⑥ R_G is external gate resistance, not including internal gate resistance or gate driver impedance. (MIC4452)

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

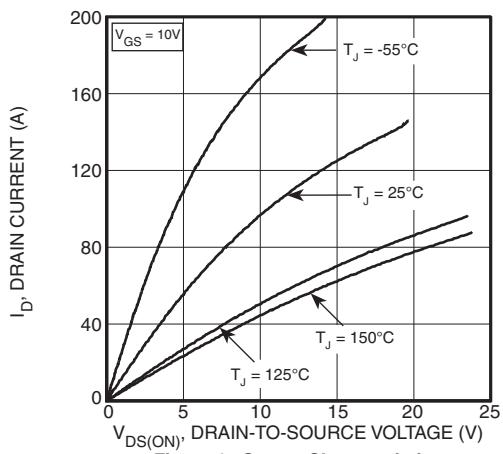


Figure 1, Output Characteristics

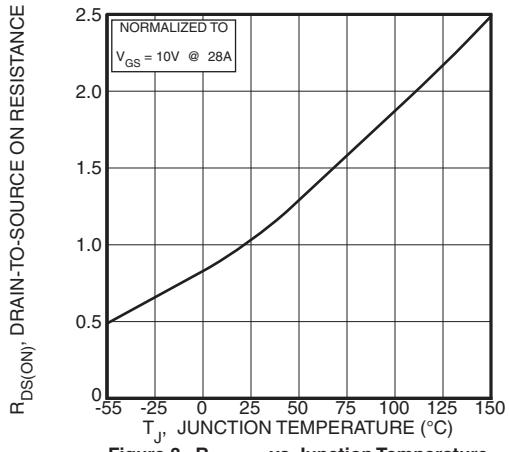
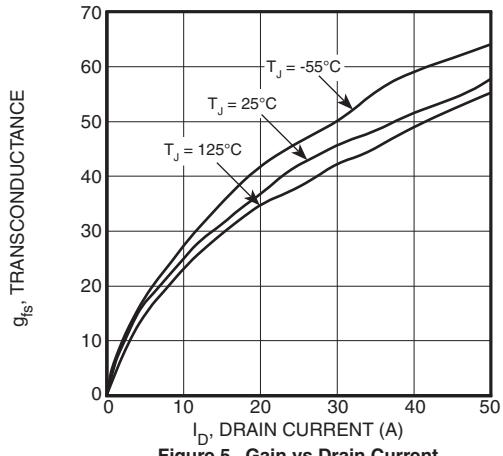
Figure 3, $R_{DS(ON)}$ vs Junction Temperature

Figure 5, Gain vs Drain Current

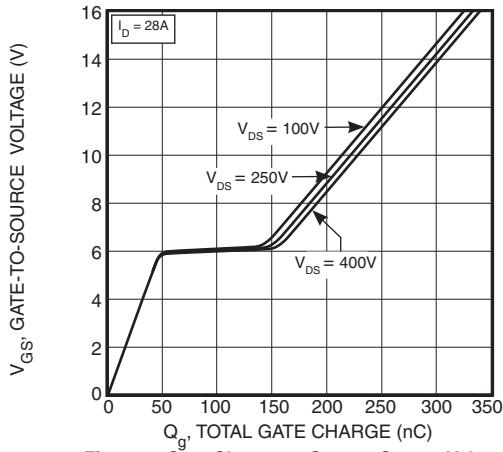


Figure 7, Gate Charge vs Gate-to-Source Voltage

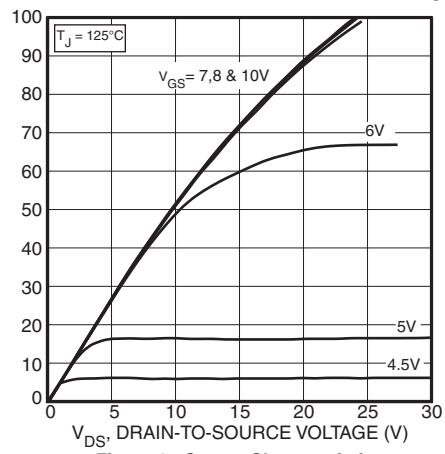


Figure 2, Output Characteristics

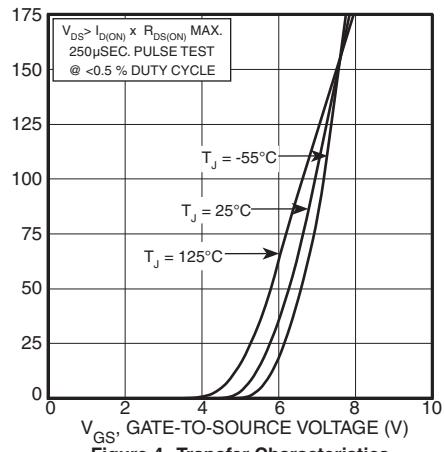


Figure 4, Transfer Characteristics

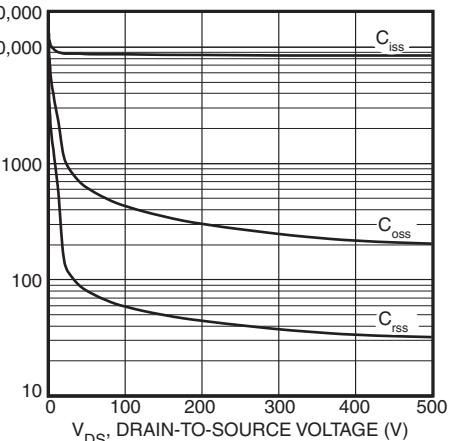


Figure 6, Capacitance vs Drain-to-Source Voltage

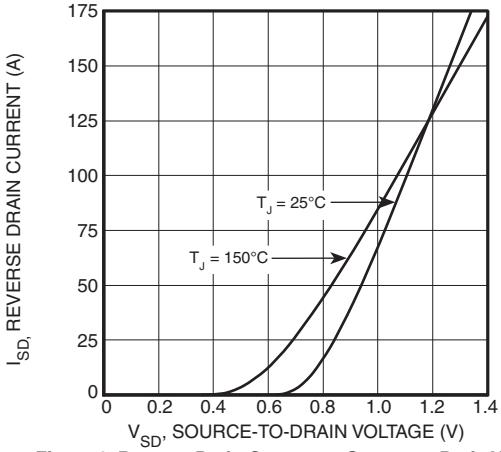


Figure 8, Reverse Drain Current vs Source-to-Drain Voltage

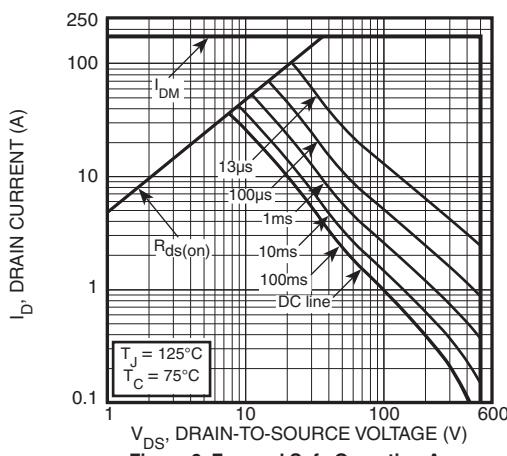


Figure 9, Forward Safe Operating Area

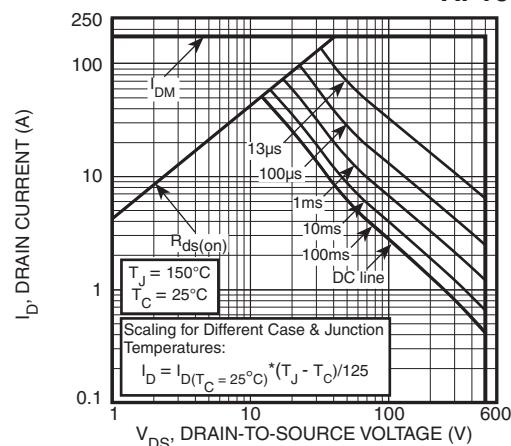


Figure 10, Maximum Forward Safe Operating Area

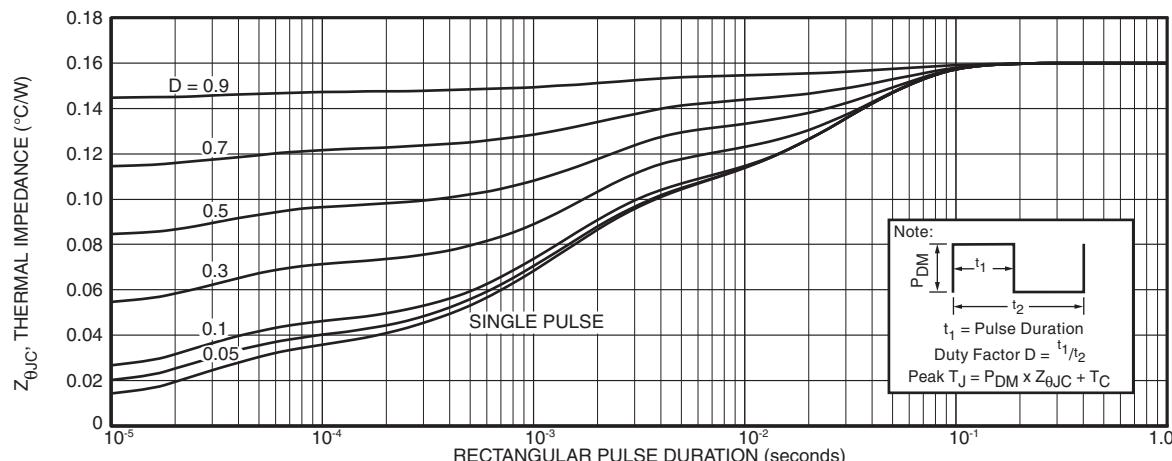
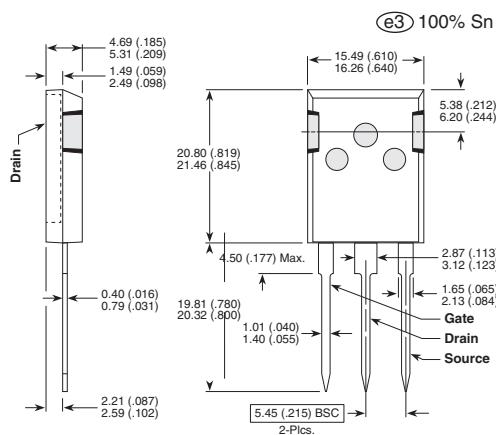
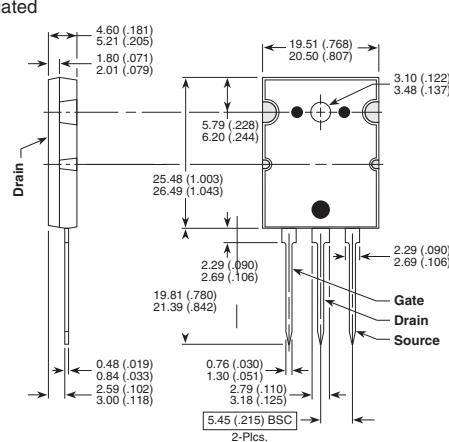


Figure 11. Maximum Effective Transient Thermal Impedance Junction-to-Case vs Pulse Duration

T-MAX™ (B2) Package Outline

Dimensions in Millimeters and (Inches)

TO-264 (L) Package Outline

Dimensions in Millimeters and (Inches)

ООО "ЛайфЭлектроникс"

"LifeElectronics" LLC

ИНН 7805602321 КПП 780501001 Р/С 40702810122510004610 ФАКБ "АБСОЛЮТ БАНК" (ЗАО) в г.Санкт-Петербурге К/С 30101810900000000703 БИК 044030703

Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибуторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибуторских договоров

Мы предлагаем:

- Конкурентоспособные цены и скидки постоянным клиентам.
- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

В составе нашей компании организован Конструкторский отдел, призванный помочь разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



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