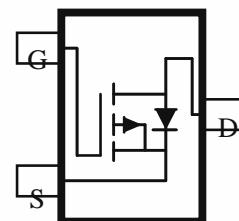
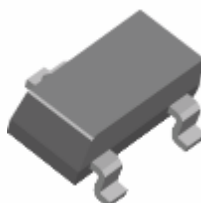


P-Channel 20-V (D-S) MOSFET

These miniature surface mount MOSFETs utilize High Cell Density process. Low $r_{DS(on)}$ assures minimal power loss and conserves energy, making this device ideal for use in power management circuitry. Typical applications are DC-DC converters, power management in portable and battery-powered products such as computers, printers, PCMCIA cards, cellular and cordless telephones.

- Low $r_{DS(on)}$ Provides Higher Efficiency and Extends Battery Life
- Miniature SOT-23 Surface Mount Package Saves Board Space
- Fast switching speed
- High performance trench technology

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (OHM)	I_D (A)
-20	0.052 @ $V_{GS} = -4.5V$	-3.6
	0.072 @ $V_{GS} = -2.5V$	-3.1
	0.120 @ $V_{GS} = -1.8V$	-2.7



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ C$ UNLESS OTHERWISE NOTED)			
Parameter	Symbol	Ratings	Units
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 8	
Continuous Drain Current ^a	I_D	$T_A=25^\circ C$	-3.6
		$T_A=70^\circ C$	-1.8
Pulsed Drain Current ^b	I_{DM}	-10	A
Continuous Source Current (Diode Conduction) ^a	I_S	± 0.46	A
Power Dissipation ^a	P_D	$T_A=25^\circ C$	1.25
		$T_A=70^\circ C$	0.8
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 150	$^\circ C$

THERMAL RESISTANCE RATINGS			
Parameter	Symbol	Maximum	Units
Maximum Junction-to-Ambient ^a	R_{THJA}	$t \leq 5$ sec	100
		Steady-State	150

Notes

- Surface Mounted on 1" x 1" FR4 Board.
- Pulse width limited by maximum junction temperature

SPECIFICATIONS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Conditions	Limits			Unit
			Min	Typ	Max	
Static						
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250 \mu\text{A}$	-0.7			
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0 \text{ V}, V_{GS} = \pm 8 \text{ V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -16 \text{ V}, V_{GS} = 0 \text{ V}$			-1	uA
		$V_{DS} = -16 \text{ V}, V_{GS} = 0 \text{ V}, T_J = 55^\circ\text{C}$			-10	
On-State Drain Current ^A	$I_{D(on)}$	$V_{DS} = -5 \text{ V}, V_{GS} = -4.5 \text{ V}$	-10			A
Drain-Source On-Resistance ^A	$r_{DS(on)}$	$V_{GS} = -4.5 \text{ V}, I_D = -3.6 \text{ A}$			52	m Ω
		$V_{GS} = -2.5 \text{ V}, I_D = -3.1 \text{ A}$			72	
		$V_{GS} = -1.8 \text{ V}, I_D = -2.7 \text{ A}$			120	
Forward Transconductance ^A	g	$V_{GS} = -5 \text{ V}, I_D = -1.25 \text{ A}$		12		S
Diode Forward Voltage	V_{SD}	$I_S^{DS} = -0.46 \text{ A}, V_{GS} = 0 \text{ V}$		-0.60		V
Dynamic^b						
Total Gate Charge	Q_g	$V_{DS} = -5 \text{ V}, V_{GS} = -4.5 \text{ V}, I_D = -2.4 \text{ A}$		12.0		nC
Gate-Source Charge	Q_{gs}			2.0		
Gate-Drain Charge	Q_{gd}			2.0		
Input Capacitance	C_{iss}	P-Channel $V_{DS} = -15 \text{ V}, V_{GS} = 0 \text{ V}, f = 1 \text{ MHz}$		1312		pF
Output Capacitance	C_{oss}			130		
Reverse Transfer Capacitance	C_{rss}			106		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -10 \text{ V}, I_L = -1 \text{ A}, V_{GEN} = -4.5 \text{ V}, R_G = 6 \Omega$		6.5		ns
Rise Time	t_r			20		
Turn-Off Delay Time	$t_{d(off)}$			31		
Fall-Time	t_f			21		

Notes

- Pulse test: $PW \leq 300 \mu\text{s}$ duty cycle $\leq 2\%$.
- Guaranteed by design, not subject to production testing.

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Typical Electrical Characteristics

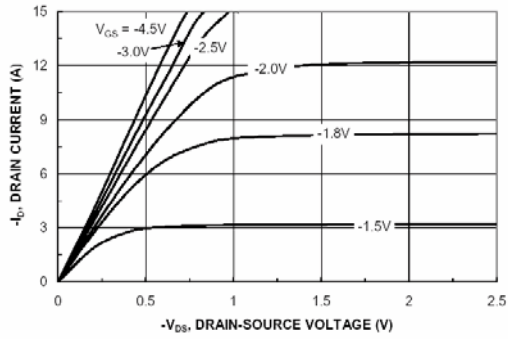


Figure 1. On-Region Characteristics

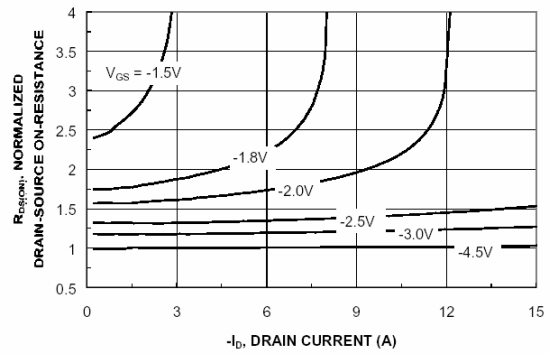


Figure 2. On-Resistance Variation with Drain Current and Gate Voltage

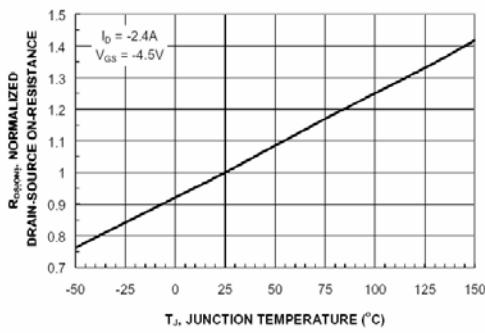


Figure 3. On-Resistance Variation with Temperature

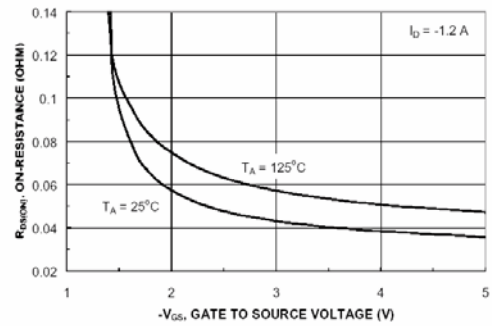


Figure 4. On-Resistance Variation with Gate to Source Voltage

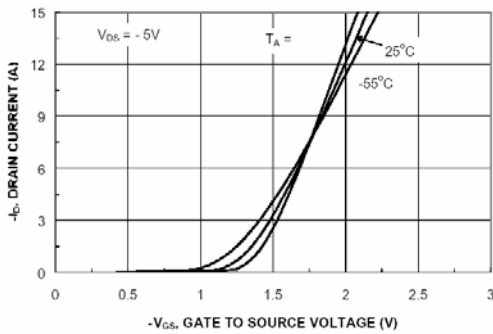


Figure 5. Transfer Characteristics

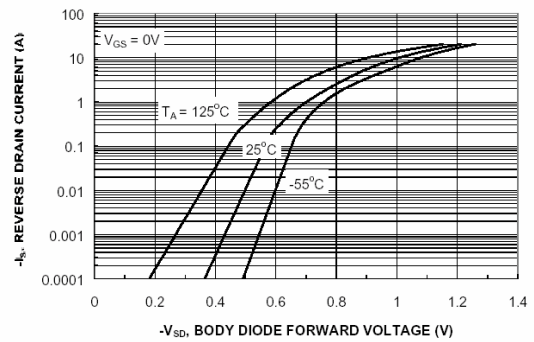


Figure 6. Body Diode Forward Voltage Variation with Source Current and Temperature

Typical Electrical Characteristics

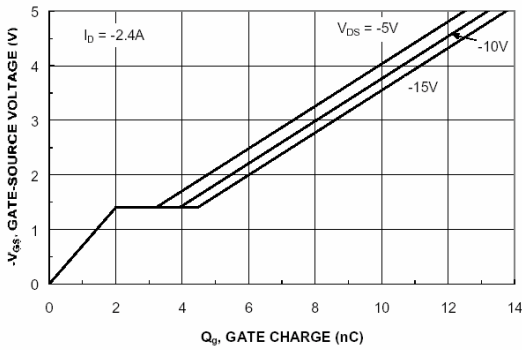


Figure 7. Gate Charge Characteristic

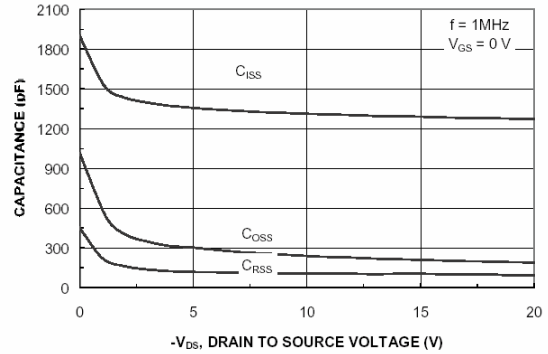


Figure 8. Capacitance Characteristic

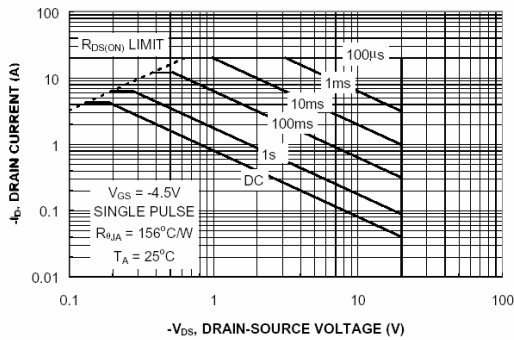


Figure 9. Maximum Safe Operating Area

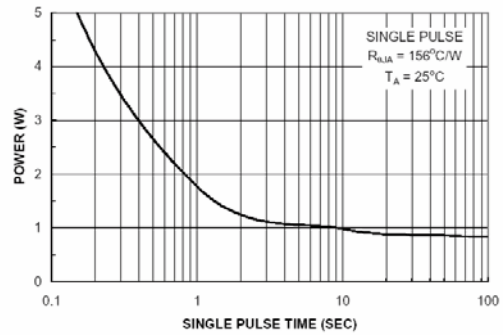


Figure 10. Single Pulse Maximum Power Dissipation

Normalized Thermal Transient Junction to Ambient

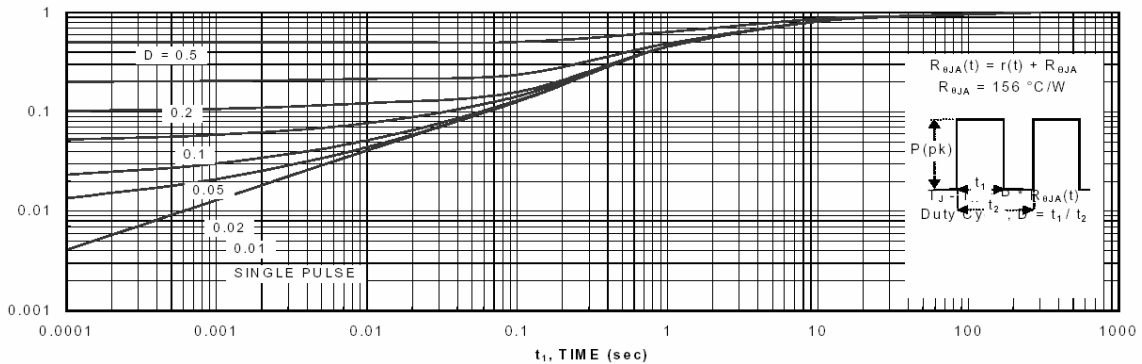
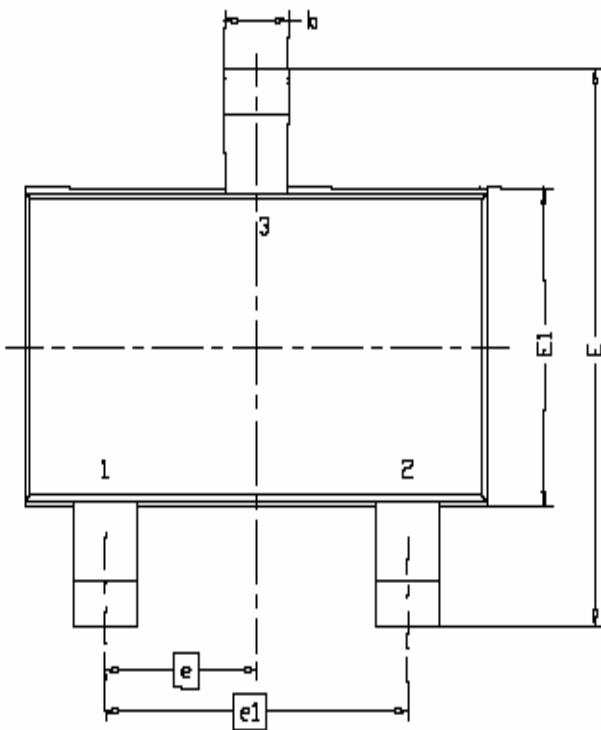
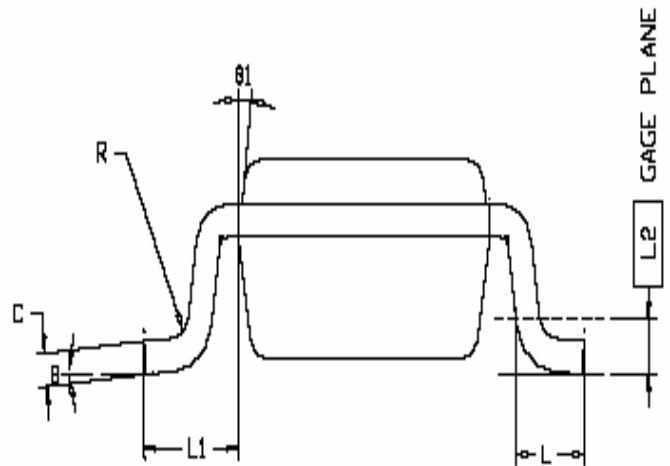
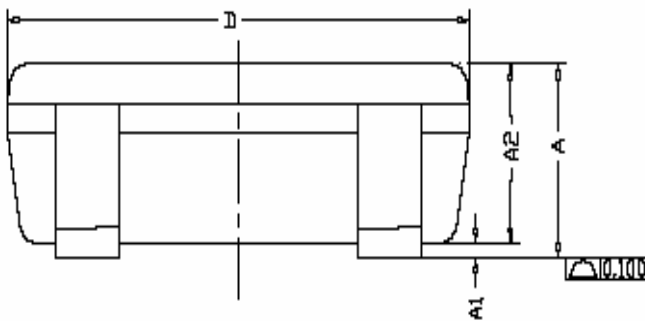


Figure 11. Transient Thermal Response Curve.

Package Information



DIM.	MILLIMETERS		
	MIN	NOM	MAX
A	0.935	0.95	1.10
A1	0.01	---	0.10
A2	0.85	0.90	0.925
b	0.30	0.40	0.50
c	0.10	0.15	0.25
D	2.70	2.90	3.10
E	2.60	2.80	3.00
E1	1.40	1.60	1.80
e	0.95 BSC		
e1	1.90 BSC		
L	0.30	0.40	0.60
L1	0.60REF		
L2	0.25BSC		
R	0.10	---	---
θ	0°	4°	8°
$\theta1$	7°NOM		



Ordering information

- AM2327P-T1-XX
 - A: Analog Power
 - M: MOSFET
 - 2327: Part number
 - P: P-Channel
 - T1: Tape & reel
 - XX: Blank: Standard
PF: Leadfree