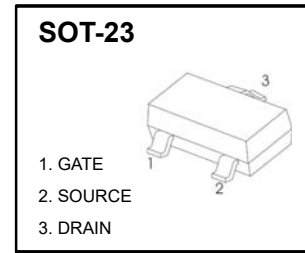


Description

The PAM2306 uses advanced trench technology and design to provide excellent RDS(ON) with low gate charge. It can be used in a wide variety of applications.

Features

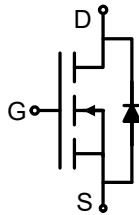
- ◆ VDS = 30V, ID = 3.16A
RDS(ON) <47mΩ @ VGS=10V
RDS(ON) <65mΩ @ VGS=4.5V
- ◆ High density cell design for ultra low Rdson
- ◆ Fully characterized avalanche voltage and current
- ◆ Excellent package for good heat dissipation



Applications

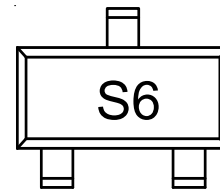
- ◆ Power switching application
- ◆ Hard switched and high frequency circuits
- ◆ Uninterruptible power supply

Dimensions and Pin Configuration



Circuit and Pin Schematic

Marking Information



Device Marking Code : S6

Maximum ratings (at TA=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source voltage	V _{DS}	30	V
Gate-Source Voltage	V _{GS}	±20	
Continuous Drain Current (T _J =150°C) ^{a,b}	I _D	3.16	A
Pulsed Drain Current	I _{DM}	20	
Continuous Source Current(Diode Conduction) ^{a,b}	I _S	0.62	
Maximum Power Dissipation ^{a,b}	P _D	0.75	W
Thermal Resistance from Junction to Ambient (t≤5s)	R _{θJA}	100	°C/W
Operating Junction and Storage Temperature Range	T _J , T _{stg}	-55 to150	°C

Notes :

- a. Surface Mounted on 1" × 1" FR4 board, t≤5s.
- b. Pulse width limited by maximum junction temperature.

MOSFET ELECTRICAL CHARACTERISTICS

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

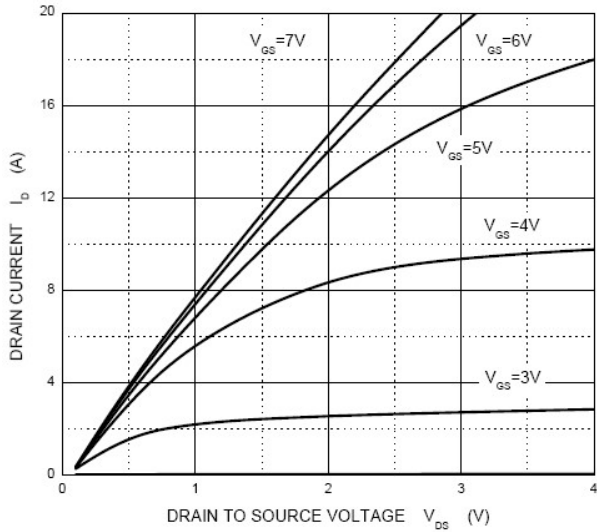
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DS}$	$V_{GS} = 0V, I_D = 250\mu A$	30			V
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.0		3.0	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 30V, V_{GS} = 0V$			0.5	μA
Drain-Source On-Resistance ^a	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 3.5A$		0.038	0.047	Ω
		$V_{GS} = 4.5V, I_D = 2.8A$		0.052	0.065	
Forward Transconductance ^a	g_{fs}	$V_{DS} = 4.5V, I_D = 2.5A$		7.0		S
Diode Forward Voltage	V_{SD}	$I_S = 1.25A, V_{GS} = 0V$		0.8	1.2	V
Dynamic						
Gate Charge	Q_g	$V_{DS} = 15V, V_{GS} = 5V, I_D = 2.5A$		3.0	4.5	nC
Total Gate Charge	Q_{gt}	$V_{DS} = 15V, V_{GS} = 10V, I_D = 2.5A$		6	9	
Gate-Source Charge	Q_{gs}			1.6		
Gate-Drain Charge	Q_{gd}			0.6		
Gate Resistance	R_g	$f = 1.0\text{MHz}$	2.5	5	7.5	Ω
Input Capacitance	C_{iss}	$V_{DS} = 15V, V_{GS} = 0V, f = 1\text{MHz}$		305		pF
Output Capacitance	C_{oss}				65	
Reverse Transfer Capacitance	C_{rss}				29	
Switching						
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 15V,$ $R_L = 15\Omega, I_D \approx 1A,$ $V_{GEN} = 10V, R_g = 6\Omega$		7	11	ns
Rise Time	t_r			12	18	
Turn-Off Delay Time	$t_{d(off)}$			14	25	
Fall Time	t_f			6	10	

Notes :

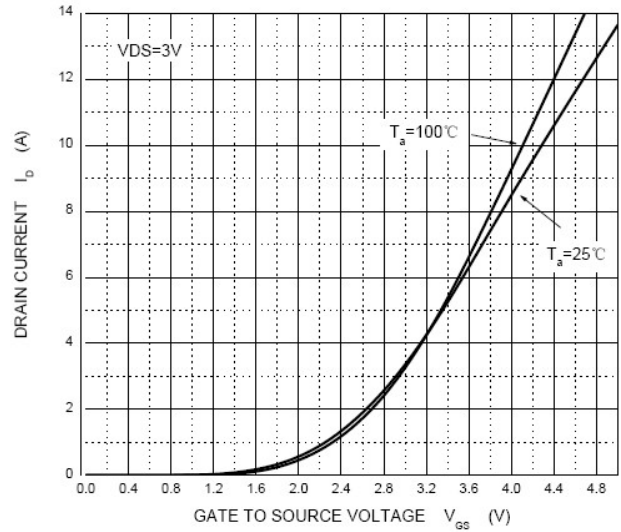
a. Pulse Test : Pulse Width $\leq 300\mu s$, duty cycle $\leq 2\%$.

Typical characteristics

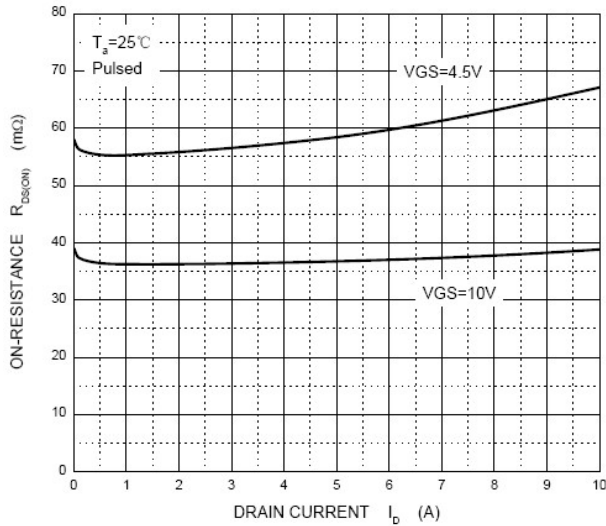
Output Characteristics



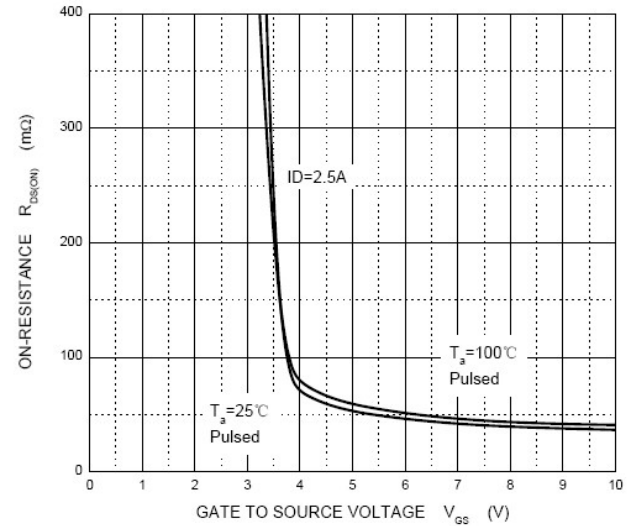
Transfer Characteristics



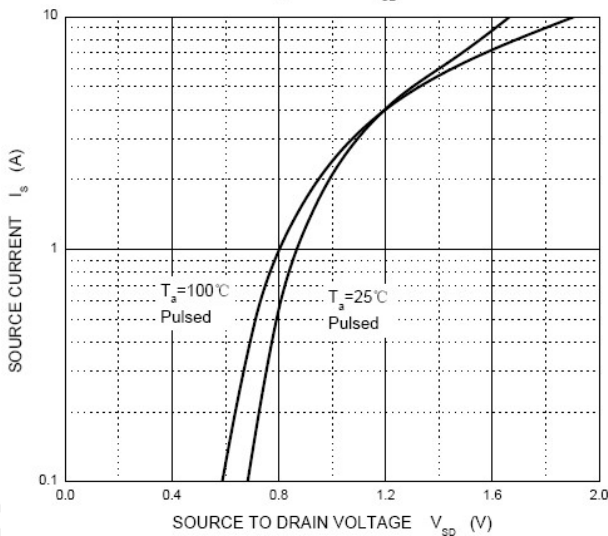
$R_{DS(ON)}$ — I_D



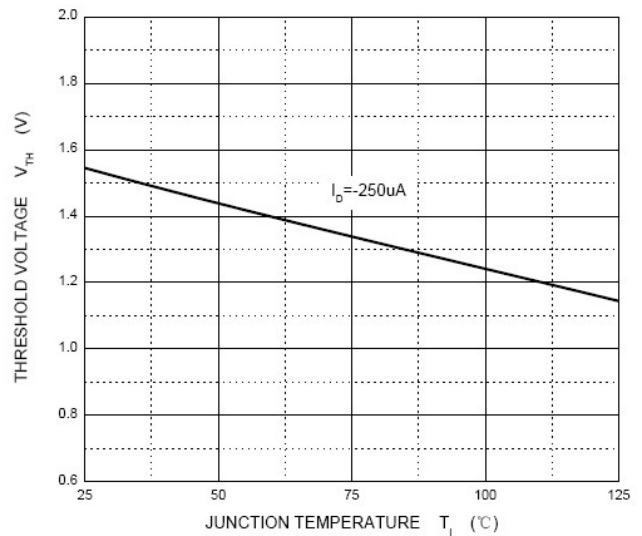
$R_{DS(ON)}$ — V_{GS}



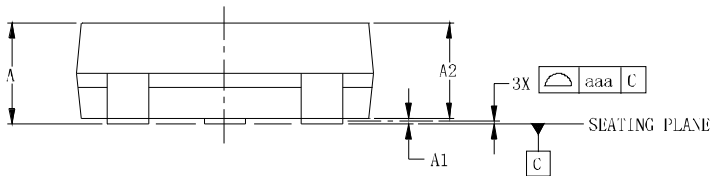
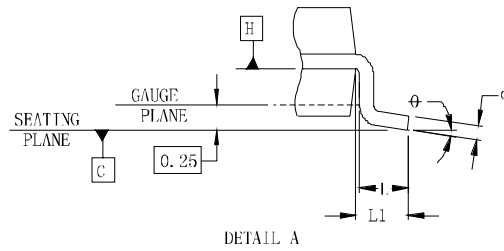
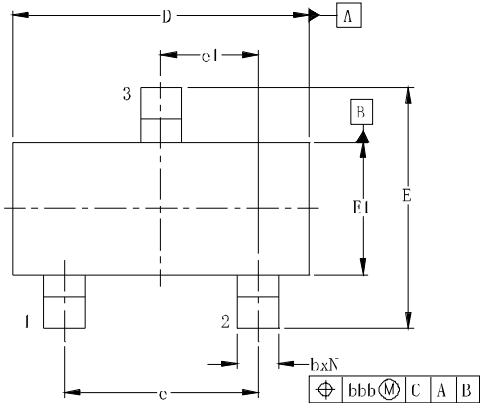
I_S — V_{SD}



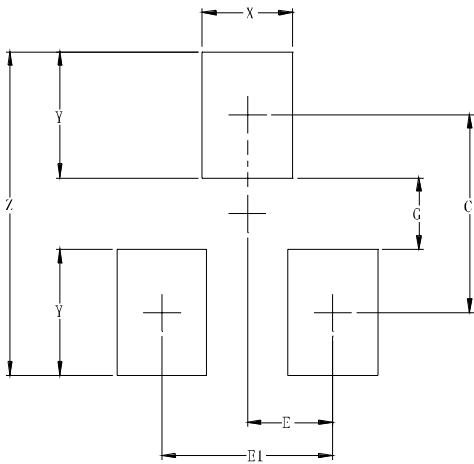
Threshold Voltage



SOT-23 Package Outline Drawing



Suggested Land Pattern



DIMENSIONS						
SYM	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.035	-	0.044	0.89	-	1.12
A1	0.000	-	0.004	0.01	-	0.10
A2	0.035	0.037	0.040	0.88	0.95	1.02
b	0.012	-	0.020	0.30	-	0.51
c	0.003	-	0.007	0.08	-	0.18
D	0.110	0.114	0.120	2.80	2.90	3.04
E	0.082	0.093	0.104	2.10	2.37	2.64
E1	0.047	0.051	0.055	1.20	1.30	1.40
e	0.075			1.90BSC		
e1	0.037			0.95BSC		
L	0.015	0.020	0.024	0.40	0.50	0.60
L1	0.022			0.55		
N	3			3		
φ	0°	-	8°	0°	-	8°
aaa	0.004			0.10		
bbb	0.008			0.20		

DIMENSIONS		
SYM	INCHES	MILLIMETERS
C	0.087	2.20
E	0.037	0.95
E1	0.075	1.90
G	0.031	0.80
X	0.039	1.00
Y	0.055	1.40
Z	0.141	3.60

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