TY Semicondutor®

Product specification

AM2317P

These miniature surface mount MOSFETs utilize a high cell density trench process to provide low $r_{DS(on)}$ and to ensure minimal power loss and heat dissipation. Typical applications are DC-DC converters and power management in portable and battery-powered products such as computers, printers, PCMCIA cards, cellular and cordless telephones.

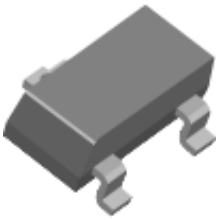
- Low $r_{DS(on)}$ provides higher efficiency and extends battery life
- Low thermal impedance copper leadframe SOT-23 saves board space
- Fast switching speed
- High performance trench technology

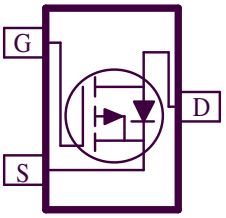
PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
-30	0.30 @ V_{GS} = -10 V	-1.0
	0.50 @ V_{GS} = -4.5V	-0.9

Pb-free

RoHS COMPLIANT

HALOGEN FREE





ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C UNLESS OTHERWISE NOTED)				
Parameter		Symbol	Maximum	Units
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current[a]	T_A=25°C	I_D	±0.9	A
	T_A=70°C		±0.75	
Pulsed Drain Current[b]		I_{DM}	±10	
Continuous Source Current (Diode Conduction)[a]		I_S	0.4	A
Power Dissipation[a]	T_A=25°C	P_D	0.5	W
	T_A=70°C		0.42	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150	°C

THERMAL RESISTANCE RATINGS				
Parameter		Symbol	Maximum	Units
Maximum Junction-to-Ambient[a]	t <= 5 sec	R_{THJA}	250	°C/W
	Steady-State		285	

Notes

a. Surface Mounted on 1" x 1" FR4 Board.

b. Pulse width limited by maximum junction temperature

SPECIFICATIONS (T_A = 25°C UNLESS OTHERWISE NOTED)						
Parameter	**Symbol**	**Test Conditions**	**Limits**			**Unit**
			Min	**Typ**	**Max**	
Switch Off Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0 V, I_D = -250 uA	-30			
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -24 V, V_{GS} = 0 V			-1	µA
		V_{DS} = -24 V, V_{GS} = 0 V, T_J = 55°C			-10	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0 V, V_{GS} = ±20 V			±100	nA
Switch On Characteristics						
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250 uA	-0.80	-1.7	-2.6	V
On-State Drain Current[A]	$I_{D(on)}$	V_{DS} = -5 V, V_{GS} = -4.5 V	-2			A
Drain-Source On-Resistance[A]	$r_{DS(on)}$	V_{GS} = -10 V, I_D = -1.0 A		0.25	0.30	Ω
		V_{GS} = -4.5 V, I_D = -0.9 A T_J = 55°C		0.53	0.66	
		V_{GS} = -4.5 V, I_D = -0.9 A		0.45	0.50	
Forward Tranconductance[A]	g_{fs}	V_{DS} = -5 V, I_D = -1.1 A		2		S
Diode Forward Voltage	V_{SD}	I_S = -0.4 A, V_{GS} = 0 V		-0.70	-1.2	V
Dynamic[b]						
Total Gate Charge	Q_g	V_{DS} = -10 V, V_{GS} = -5 V, I_D = -0.9 A		2.0	3.0	nC
Gate-Source Charge	Q_{gs}			0.5		
Gate-Drain Charge	Q_{gd}			1.1		
Switching						
Turn-On Delay Time	$t_{d(on)}$	V_{DS} = -10 V, I_D = -0.9 A, R_G = 50 Ω, V_{GEN} = -10 V		8	16	ns
Rise Time	t_r			16	32	
Turn-Off Delay Time	$t_{d(off)}$			36	93	
Fall-Time	t_f			33	94	

Notes

a. Pulse test: PW <= 300us duty cycle <= 2%.

b. Guaranteed by design, not subject to production testing.