TY Semicondutor®

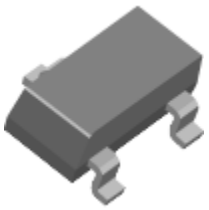
Product specification

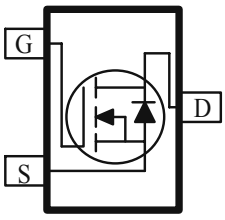
AM2300N

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
- Low gate charge 7nC
- High performance
- High current handling
- Miniature SOT-23 Surface Mount Package Saves Board Space

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
20	0.035 @ V_{GS} = 4.5V	4.3
	0.050 @ V_{GS} = 2.5V	3.5





ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C UNLESS OTHERWISE NOTED)				
Parameter		**Symbol**	**Maximum**	**Units**
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	±8	
Continuous Drain Current[a]	T_A=25°C	I_D	4.3	A
	T_A=70°C		3.3	
Pulsed Drain Current[b]		I_{DM}	10	
Continuous Source Current (Diode Conduction)[a]		I_S	0.46	A
Power Dissipation[a]	T_A=25°C	P_D	1.25	W
	T_A=70°C		0.8	
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}	100	°C/W
	Steady-State		166	

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**	
Static						
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250 uA	0.7			
Gate-Body Leakage	I_{GSS}	V_{DS} = 0 V, V_{GS} = 8 V			100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 16 V, V_{GS} = 0 V			1	uA
		V_{DS} = 20 V, V_{GS} = 0 V, T_J = 55°C			10	
On-State Drain Current[A]	$I_{D(on)}$	V_{DS} = 5 V, V_{GS} = 4.5 V	10			A
Drain-Source On-Resistance[A]	$r_{DS(on)}$	V_{GS} = 4.5 V, I_D = 4.3 A		30	35	mΩ
		V_{GS} = 2.5 V, I_D = 3.5 A		40	50	
Forward Tranconductance[A]	g_{fs}	V_{DS} = 5 V, I_D = 3.0 A		11		S
Diode Forward Voltage	V_{SD}	I_S = 0.46 A, V_{GS} = 0 V		0.65	1.20	V
Dynamic[b]						
Total Gate Charge	Q_g	V_{DS} = 10 V, V_{GS} = 4.5 V, I_D = 3.0 A		7.0		nC
Gate-Source Charge	Q_{gs}			1.20		
Gate-Drain Charge	Q_{gd}			1.90		
Input Capacitance	C_{iss}	V_{DS} = 15 V, V_{GS} = 0 V, f = 1MHz		700		pF
Output Capacitance	C_{oss}			175		
Reverse Transfer Capacitance	C_{rss}			85		
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = 10 V, I_D = 1 A, R_G = 6 Ω, V_{GEN} = 4.5 V		9		ns
Rise Time	t_r			11		
Turn-Off Delay Time	$t_{d(off)}$			18		
Fall-Time	t_f			5		

Notes

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

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