TY Semicondutor®

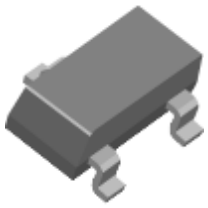
Product specification

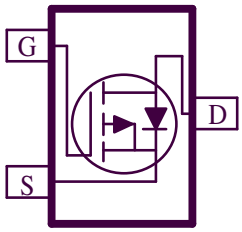
AM1331P

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.

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (OHM)	I_D (A)
-30	0.112 @ V_{GS} = -10V	-1.5
	0.172 @ V_{GS} = -4.5V	-1.2

- Low $r_{DS(on)}$ provides higher efficiency and extends battery life
- Low thermal impedance copper leadframe SC70-3 saves board space
- Fast switching speed
- High performance trench technology





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	-1.5	A
	T_A=70°C		-1.2	
Pulsed Drain Current[b]		I_{DM}	-2.5	
Continuous Source Current (Diode Conduction)[a]		I_S	±0.28	A
Power Dissipation[a]	T_A=25°C	P_D	0.34	W
	T_A=70°C		0.22	
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}	375	°C/W
	Steady-State		430	

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	-1			V
Gate-Body Leakage	I_{GSS}	V_{DS} = 0 V, V_{GS} = ±20 V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -24 V, V_{GS} = 0 V			-1	uA
		V_{DS} = -24 V, V_{GS} = 0 V, T_J = 55°C			-10	
On-State Drain Current[A]	$I_{D(on)}$	V_{DS} = -5 V, V_{GS} = -10 V	-5			A
Drain-Source On-Resistance[A]	$r_{DS(on)}$	V_{GS} = -10 V, I_D = -1.5 A			112	mΩ
		V_{GS} = -4.5 V, I_D = -1.2 A			172	
Forward Tranconductance[A]	g_{fs}	V_{DS} = -5 V, I_D = -1.5 A		9		S
Diode Forward Voltage	V_{SD}	I_S = -0.46 A, V_{GS} = 0 V		-0.65		V
Dynamic[b]						
Total Gate Charge	Q_g	V_{DS} = -10 V, V_{GS} = -5 V, I_D = -1.5 A		7.2		nC
Gate-Source Charge	Q_{gs}			1.7		
Gate-Drain Charge	Q_{gd}			1.5		
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = -10 V, I_L = -1 A, V_{GEN} = -4.5 V, R_G = 6 Ω		10		ns
Rise Time	t_r			9		
Turn-Off Delay Time	$t_{d(off)}$			27		
Fall-Time	t_f			11		

Notes

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

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

c. Repetitive rating, pulse width limited by junction temperature.