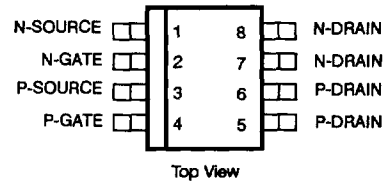
Siliconix incorporated

TD3001Y
N- and P-Channel Half-Bridge MOSFETs

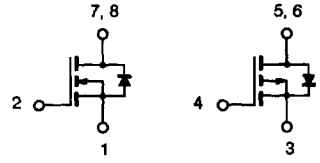
PRODUCT SUMMARY

	$V_{(BR)DSS}$ (V)	$r_{DS(ON)}$ (Ω)	I_D (A)
N-Channel	30	1.5	0.61
P-Channel	-30	2	0.39

SO PACKAGE



Top View



FEATURES

- Electrically Isolated MOSFETs
- Surface Mount
- Low Thermal Resistance

APPLICATIONS

- MOSFET Drivers
- Motor Drivers

END PRODUCTS

- Disk/Tape Drives
- Printers/Plotters
- Instrumentation

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS N-CHANNEL	LIMITS P-CHANNEL	UNITS
Drain-Source Voltage		V_{DS}	30	-30	V
Gate-Source Voltage		V_{GS}	±20		
Continuous Drain Current	T_A = 25°C	I_D	0.61	-0.54	A
	T_A = 100°C		0.39	-0.34	
Pulsed Drain Current[1]		I_{DM}	±2		
Maximum Power Dissipation	T_A = 25°C	P_D	1.2		W
	T_A = 100°C		0.48		
Operating Junction & Storage Temperature Range		T_J, T_{stg}	-55 to 150		°C
Lead Temperature ($^1/_{16}$" from case for 10 sec.)		T_L	300		

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	LIMITS	UNITS
Junction-to-Ambient	R_{thJA}	104	K/W

[1]Pulse width limited by maximum junction temperature.

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SPECIFICATIONS[a]			N-CHANNEL LIMITS			
PARAMETER	SYMBOL	TEST CONDITIONS	TYP[b]	MIN	MAX	UNIT
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0 V, I_D = 10 µA		30		V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250 µA	1.5	0.8	2.0	
Gate-Body Lekage	I_{GSS}	V_{DS} = 0 V, V_{GS} = ±20 V	±1		±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 24 V, V_{GS} = 0 V			1.0	µA
		T_J = 125°C			50	
On-State Drain Current[c]	$I_{D(ON)}$	V_{DS} = 10 V, V_{GS} = 4.5 V	0.6	0.30		mA
		V_{DS} = 10 V, V_{GS} = 10 V	2.5	1		
Drain-Source On-Resitance[c]	$r_{DS(ON)}$	V_{GS} = 4.5 V, I_D = 0.3 A	2.7		3.5	Ω
		T_J = 125°C	5.4		7	
		V_{GS} = 10 V, I_D = 1 A	0.90		1.5	
		T_J = 125°C	2.0		3.0	
Forward Transconductance[c]	g_{FS}	V_{DS} = 10 V, I_D = 0.5 A	500	300		mS
DYNAMIC						
Input Capacitance	C_{lss}	V_{GS} = 0 V, V_{DS} = 15 V, f = 1 MHz	40		60	pF
Output Capacitance	C_{oss}		30		40	
Reverse Transfer Capacitance	C_{rss}		8		15	
SWITCHING						
Turn-On Time	t_{ON}	V_{DD} = 25 V, R_L = 24 Ω, I_D = 1 A V_{GEN} = 10 V, R_G = 25 Ω	10		20	ns
Turn-Off Time	t_{OFF}	(Switching time is essentially independent of operating temperature)	15		30	

NOTES:
a. T_A = 25°C unless otherwise noted.
b. For design aid only, not subject to production testing.
c. Pulse test: Pulse Width ≤ 300 µsec, Duty Cycle ≤ 2%.

SPECIFICATIONS[a]			P-CHANNEL LIMITS			
PARAMETER	SYMBOL	TEST CONDITIONS	TYP[b]	MIN	MAX	UNIT
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0 V, I_D = -10 µA		-30		V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -1 mA		-1	-4	
Gate-Body Lekage	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	µA
		T_J = 125°C			-50	
On-State Drain Current[c]	$I_{D(ON)}$	V_{DS} = 10 V, V_{GS} = -10 V	-1.5	-0.80		mA
Drain-Source On-Resitance[c]	$r_{DS(ON)}$	V_{GS} = -10 V, I_D = -200 m A			2	Ω
		T_J = 125°C			7	
Forward Transconductance[c]	g_{FS}	V_{DS} = 10 V, I_D = 0.5 A	290	200		mS
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0 V, V_{DS} = -15 V, f = 1 MHz	130		150	pF
Output Capacitance	C_{oss}		75		100	
Reverse Transfer Capacitance	C_{rss}		20		60	
SWITCHING						
Turn-On Time	t_{ON}	V_{DD} = -25 V, R_L = 24 Ω, I_D = -1 A V_{GEN} = -10 V, R_G = 25 Ω	16		30	ns
Turn-Off Time	t_{OFF}	(Switching time is essentially independent of operating temperature)	13		30	

NOTES:
a. T_A = 25°C unless otherwise noted.
b. For design aid only, not subject to production testing.
c. Pulse test: Pulse Width ≤ 300 µsec, Duty Cycle ≤ 2%.

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