

3875081 G E SOLID STATE

01E 11056 D

T-37-25



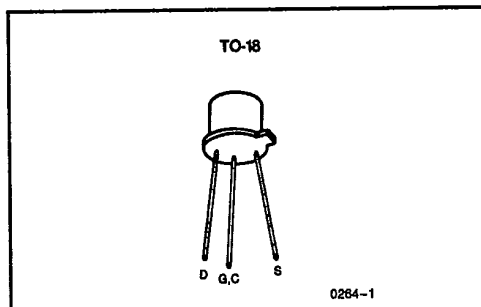
U304-U306

P-Channel JFET Switch

FEATURES

- Low ON Resistance
- $I_{D(off)} < 500\text{pA}$
- Switches directly from TTL Logic (U306)

PIN CONFIGURATION



APPLICATIONS

- Analog Switches
- Commutators
- Choppers

ABSOLUTE MAXIMUM RATINGS

($T_A = 25^\circ\text{C}$ unless otherwise noted)
 Gate-Drain or Gate-Source Voltage (Note 1) 30V
 Gate Current 50mA
 Storage Temperature Range -65°C to $+200^\circ\text{C}$
 Operating Temperature Range -55°C to $+150^\circ\text{C}$
 Lead Temperature (Soldering, 10sec) 300°C
 Power Dissipation 350mW
 Derate above 25°C 2.8mW/ $^\circ\text{C}$

NOTE: Stresses above those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions above those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

ORDERING INFORMATION

TO-18
U304
U305
U306

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Test Conditions	U304		U305		U306		Units
			Min	Max	Min	Max	Min	Max	
I_{GSS}	Gate Reverse Current	$V_{GS} = 20\text{V}, V_{DS} = 0$		500		500		500	pA
		$T_A = 150^\circ\text{C}$		1.0		1.0		1.0	μA
BV_{GSS}	Gate-Source Breakdown Voltage	$I_G = 1\mu\text{A}, V_{DS} = 0$	30		30		30		V
$V_{GS(off)}$	Gate-Source Cutoff Voltage	$V_{DS} = -15\text{V}, I_D = -1\mu\text{A}$	5	10	3	6	1	4	
$V_{DS(on)}$	Drain-Source ON Voltage	$V_{GS} = 0, I_D = -15\text{mA}$ (U304), $I_D = -7\text{mA}$ (U305), $I_D = -3\text{mA}$ (U306)		-1.3		-0.8		-0.6	
I_{DSS}	Saturation Drain Current (Note 1)	$V_{DS} = -15\text{V}, V_{GS} = 0$	-30	-90	-15	-60	-5	-25	mA
$I_{D(off)}$	Drain Cutoff Current	$V_{DS} = -15\text{V}, V_{GS} = 12\text{V}$ (U304) $V_{GS} = 7\text{V}$ (U305) $V_{GS} = 5\text{V}$ (U306)		-500		-500		-500	pA
		$T_A = 150^\circ\text{C}$		-1.0		-1.0		-1.0	μA
$r_{DS(on)}$	Static Drain-Source ON Resistance	$V_{GS} = 0\text{V}, I_D = -1\text{mA}$		85		110		175	Ω
$r_{ds(on)}$	Drain-Source ON Resistance	$V_{GS} = 0\text{V}, I_D = 0$ $f = 1\text{kHz}$		85		110		175	Ω

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NOTE: All typical values have been characterized but are not tested.

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01E 11057 D

U304-U306**INTERMIL**

T-37-25

U304-U306

ELECTRICAL CHARACTERISTICS (Continued) ($T_A = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Test Conditions			U304		U305		U306		Units
					Min	Max	Min	Max	Min	Max	
C_{iss}	Common-Source Input Capacitance (Note 2)	$V_{DS} = -15\text{V}$, $V_{GS} = 0$	$f = 1\text{MHz}$			27		27		27	pF
C_{rss}	Common-Source Reverse Transfer Capacitance (Note 2)	$V_{DS} = 0$, $V_{GS} = 12\text{V}$ (U304) $V_{GS} = 7\text{V}$ (U305), $V_{GS} = 5\text{V}$ (U306)				7		7		7	
$t_{d(on)}$	Turn-ON Delay Time (Note 2)	V_{DD}	U304	U305	U306						ns
			-10V	-6V	-6V		20		25		
t_r	Rise Time (Note 2)	$V_{GS(off)}$	12V	7V	5V		15		25		
$t_{d(off)}$	Turn-OFF Delay Time (Note 2)	R_L	580 Ω	743 Ω	1800 Ω		10		15		
t_f	Fall Time (Note 2)	$V_{GS(on)}$	0	0	0		25		40		60
		$I_{D(on)}$	-15mA	-7mA	-3mA						

NOTES: 1. Pulse test pulsewidth = 300 μs , duty cycle $\leq 3\%$.
 2. For design reference only, not 100% tested.

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