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TPRJU003N03

N-Channel POWER MOSFET

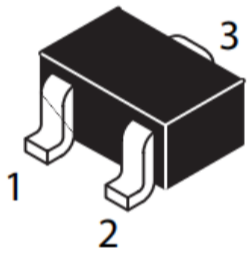
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Description

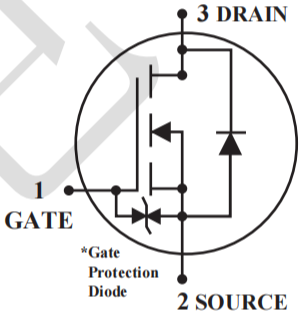
* Low on-resistance.
* Fast switching speed.
* Low voltage drive (2.5V) makes this device ideal for portable equipment.
* Easily designed drive circuits.
* Easy to parallel.

Features

* Simple Drive Requirement
* Small Package Outline



SOT-323



Maximum Ratings (T_A=25°C Unless Otherwise Specified)

Rating	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current T_A=25°C	I_D	100	mA
Pulsed Drain Current (tp ≤ 10μS)	I_{DM}	400	mA
Power Dissipation (T_A=25°C)*	P_D	200	mW
Operating Junction Temperature Range	T_J	+150	°C
Storage Temperature Range	Tstg	-55 to +150	°C

With each pin mounted on the recommended lands.

Electrical Characteristics (T_A=25°C Unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Static					
Drain-Source Breakdown Voltage V_{GS}=0V, I_D=10μA	$V_{(BR)DSS}$	30	-	-	V
Gate-Threshold Voltage V_{DS}=3V , I_D=100μA	$V_{GS\ (th)}$	0.8	-	1.5	V
Gate-Source Leakage Current V_{GS}=±20V	I_{GSS}	-	-	±1.0	μA
Drain-Source Leakage Current V_{DS}=30V, V_{GS}=0	I_{DSS}	-	-	1.0	μA
Static Drain-Source On-Resistance V_{GS}=4V, I_D=10mA V_{GS}=2.5V, I_D=1mA	$R_{DS(on)}$	- -	5.0 7.0	8.0 13	Ω
Forward Transconductance V_{DS}=3V, I_D=10mA	g_{fs}	20	-	-	mS
Dynamic					
Input Capacitance V_{DS}=5V, V_{GS}=0V, f=1.0MHz	C_{iss}	-	13	-	pF
Output Capacitance V_{DS}=5V, V_{GS}=0V, f=1.0MHz	C_{oss}	-	9	-	
Reverse Transfer Capacitance V_{DS}=5V, V_{GS}=0V, f=1.0MHz	C_{rss}	-	4	-	
Switching					
Turn-On Time V_{GS}=5V, I_D=10mA, R_L=500Ω ,R_G=10Ω	td(on)	-	15	-	ns
Rise time V_{GS}=5V, I_D=10mA, R_L=500Ω ,R_G=10Ω	t_r	-	35	-	
Turn-Off delay Time V_{GS}=5V, I_D=10mA, R_L=500Ω ,R_G=10Ω	td(on)	-	80	-	
Fall time V_{GS}=5V, I_D=10mA, R_L=500Ω ,R_G=10Ω	t_r	-	80	-	

TYPICAL ELECTRICAL CHARACTERISTICS

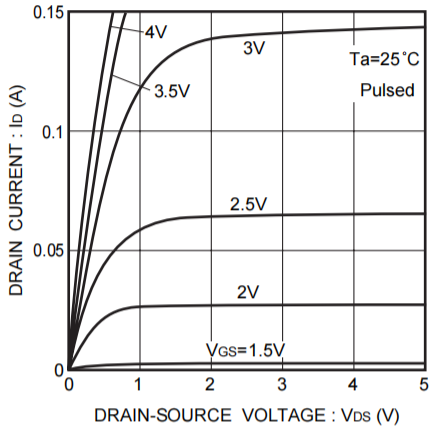


Fig.1 Typical output characteristics

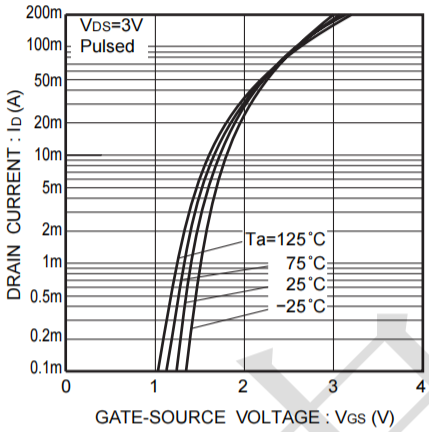


Fig.2 Typical transfer characteristics

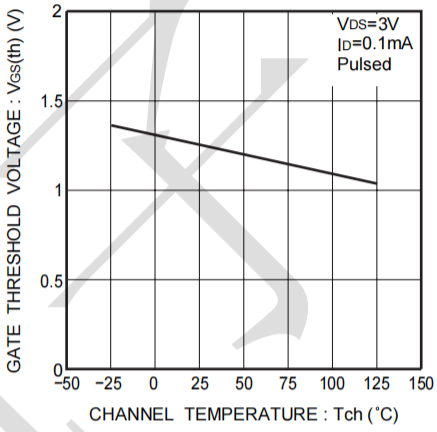


Fig.3 Gate threshold voltage vs. channel temperature

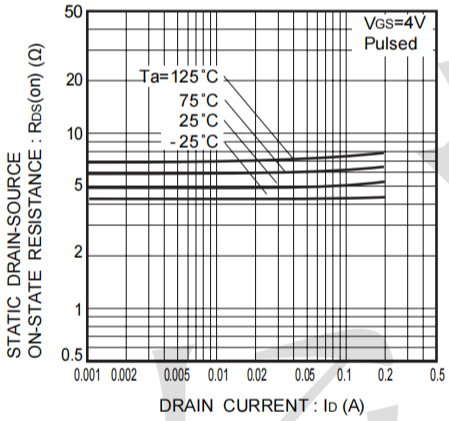


Fig.4 Static drain-source on-state resistance vs. drain current (I)

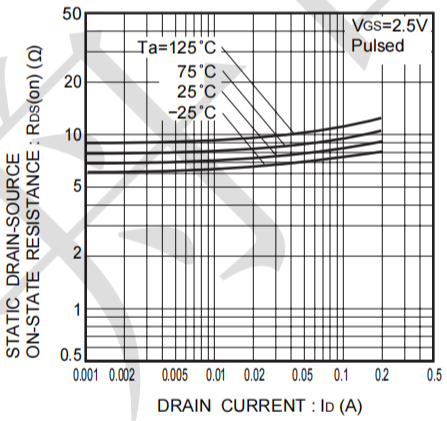


Fig.5 Static drain-source on-state resistance vs. drain current (II)

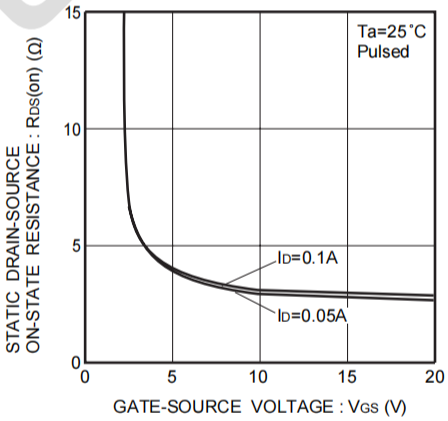


Fig.6 Static drain-source on-state resistance vs. gate-source voltage

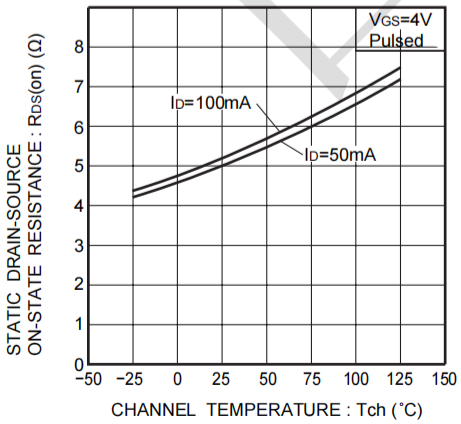


Fig.7 Static drain-source on-state resistance vs. channel temperature

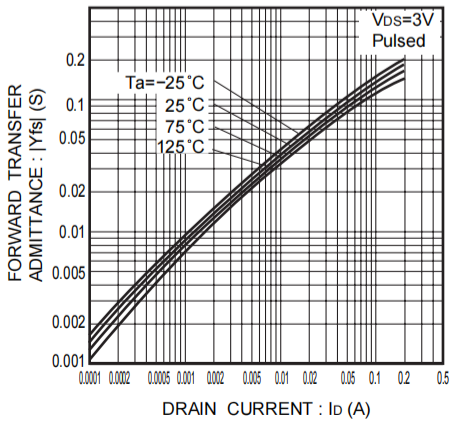


Fig.8 Forward transfer admittance vs. drain current

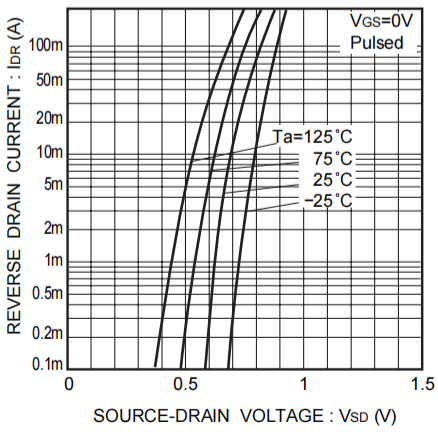


Fig.9 Reverse drain current vs. source-drain voltage (I)

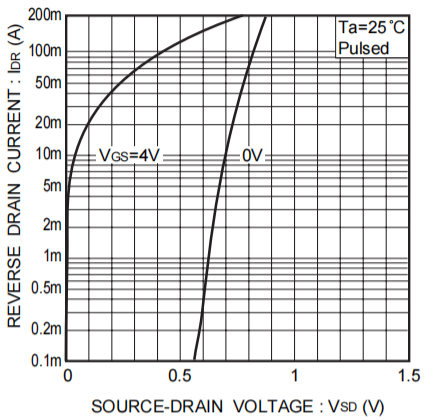


Fig.10 Reverse drain current vs. source-drain voltage (II)

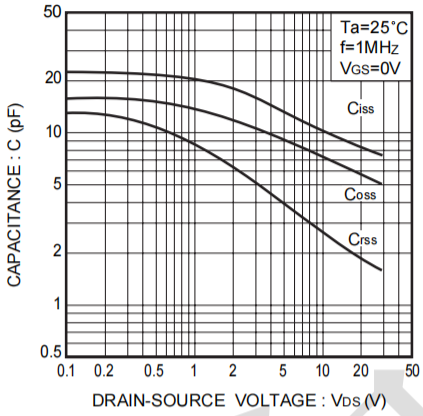


Fig.11 Typical capacitance vs. drain-source voltage

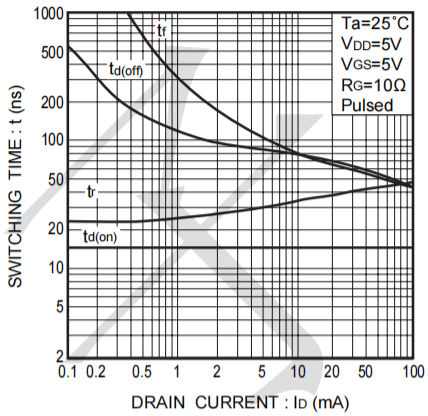


Fig.12 Switching characteristics (See Figures 13 and 14 for the measurement circuit and resultant waveforms)

Switching characteristics measurement circuit

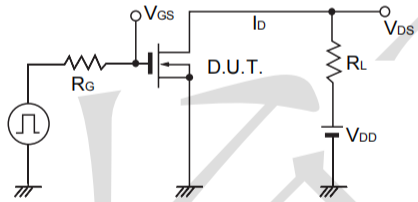


Fig.13 Switching time measurement circuit

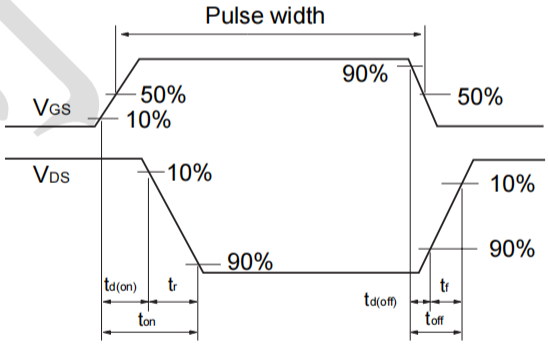
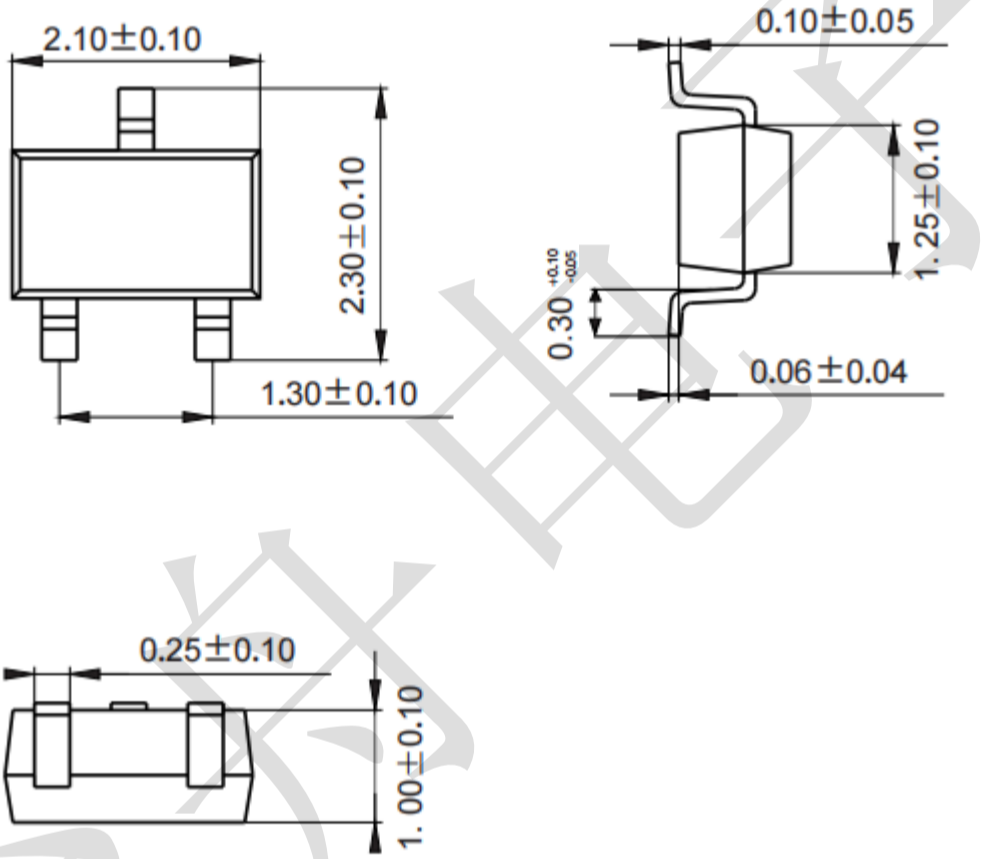


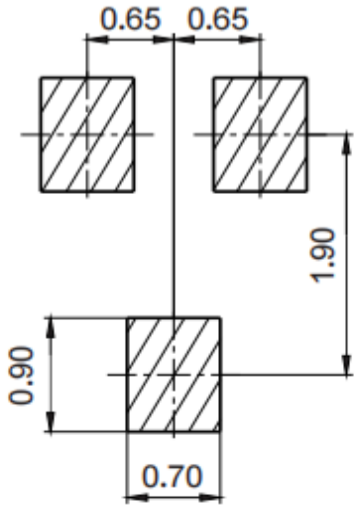
Fig.14 Switching time waveforms

Package Outline Dimensions (unit:mm)

SOT-323



Mounting Pad Layout (unit: mm)



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TECH PUBLIC:

TPS7B6950DBVR-TP TPGC12C-1 TPADM809LAKSZ DDTA143ZCA DMP6350S BV15C TPB1A30-123 TPESD0402G08V TPESD0504S6-A TPADM809SAKSZ IRFR2405TRPBF-TP LTH7 TPWSB5557Z TPS3809L30DBVR-TP TPSPX3819M5-L-3-3 TPZVN3320FTA TPZXMP3A13FTA FDC6301N-TP QM3003J-TP TPAPX809S-31SA TPDMG6602SVT TPFMMT493 FDMS7670AS-TP SI3932DV TPESD5311N ESD5B5.0ST1G-P SN7002W TPB05A40-323 BSN20W TPD1213A-02SM