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TPM6321S6

N-Channel + P-Channel Enhancement Mode MOSFET

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Features

	$V_{(BR)DSS}$	$R_{DS(on)}$MAX	I_D
Q_1	25V	270mΩ@4.5V 320mΩ@2.5V 800mΩ@1.8V	0.8 A
Q_2	-25V	520mΩ@-4.5V 700mΩ@-2.5V 950mΩ(TYP)@-1.8V	-0.8 A

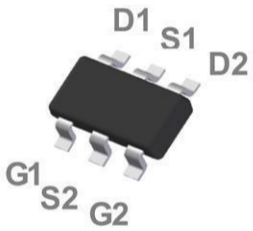
- ESD Protected

Application

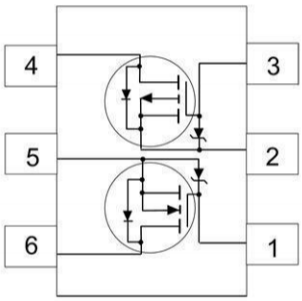
- *Notebook*
- *Load Switch*
- *Networking*
- *Hand-held Instruments*

Package and Pin Configuration

SOT23-6



Circuit diagram



Marking: 321P

Absolute Maximum Ratings Tc=25℃ unless otherwise noted

Parameter	Symbol	Value	Unit
N-MOSFET			
Drain-Source Voltage	V_{DS}	25	V
Typical Gate-Source Voltage	V_{GS}	±8	V
Continuous Drain Current (note 1)	I_D	0.8	A
Pulsed Drain Current (tp=10us)	I_{DM}	1.3	A
P-MOSFET			
Drain-Source Voltage	V_{DS}	-25	V
Typical Gate-Source Voltage	V_{GS}	±8	V
Continuous Drain Current (note 1)	I_D	-0.8	A
Pulsed Drain Current (tp=10us)	I_{DM}	-1.3	A
Temperature and Thermal Resistance			
Thermal Resistance from Junction to Ambient (note 1)	$R_{\theta JA}$	650	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55~+150	℃
Lead Temperature for Soldering Purposes(1/8'' from case for 10 s)	T_L	260	℃
Maximum Power Dissipation TA=25℃	P_D	0.19	W

Electrical Characteristics (T_J=25 ℃, unless otherwise noted)

Q_1

N-ch MOSFET ELECTRICAL CHARACTERISTICS

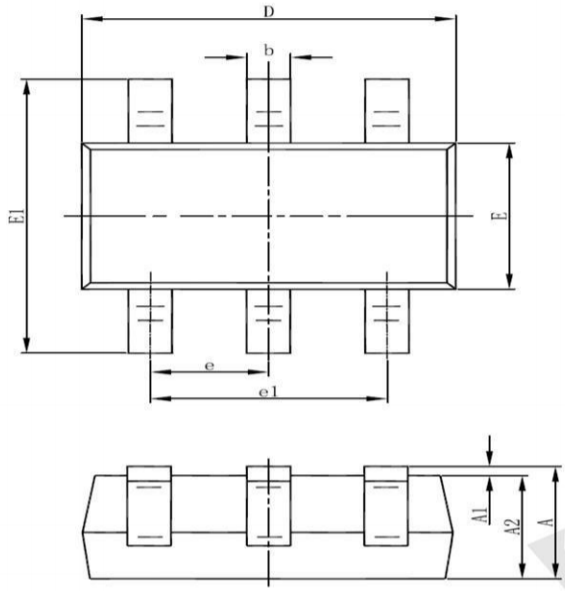
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
STATIC CHARACTERISTICS						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	25			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =20V,V_{GS} = 0V			1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±12V, V_{DS} = 0V			±20	uA
Gate threshold voltage (note 2)	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	0.45	0.7	1.1	V
Drain-source on-resistance(note 2)	$R_{DS(on)}$	V_{GS} =4.5V, I_D =0.65A			270	mΩ
		V_{GS} =2.5V, I_D =0.55A			320	mΩ
		V_{GS} =1.8V, I_D =0.45A			800	mΩ
Forward tranconductance(note 2)	g_{FS}	V_{DS} =10V, I_D =0.8A		1.6		S
Diode forward voltage	V_{SD}	I_S=0.15A, V_{GS} = 0V			1.2	V
DYNAMIC CHARACTERISTICS (note 4)						
Input Capacitance	C_{iss}	V_{DS} =16V,V_{GS} =0V,f =1MHz			120	pF
Output Capacitance	C_{oss}				20	pF
Reverse Transfer Capacitance	C_{rss}				15	pF
SWITCHING CHARACTERISTICS (note 3,4)						
Turn-on delay time	$t_{d(on)}$	V_{GS}=4.5V,V_{DS}=10V, I_D=500mA,R_{GEN}=10Ω		6.7		ns
Turn-on rise time	t_r			4.8		ns
Turn-off delay time	$t_{d(off)}$			17.3		ns
Turn-off fall time	t_f			7.4		ns

Q_2

P-ch MOSFET ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
STATIC CHARACTERISTICS						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =-250μA	-25			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =-20V,V_{GS} = 0V			-1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±12V, V_{DS} = 0V			±20	uA
Gate threshold voltage (note 2)	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-0.45	-0.7	-1.3	V
Drain-source on-resistance(note 2)	$R_{DS(on)}$	V_{GS} =-4.5V, I_D =-1A		270	520	mΩ
		V_{GS} =-2.5V, I_D =-0.8A		330	700	mΩ
		V_{GS} =-1.8V, I_D =-0.5A		950		mΩ
Forward tranconductance(note 2)	g_{FS}	V_{DS} =-10V, I_D =-0.54A		1.2		S
Diode forward voltage	V_{SD}	I_S=-0.5A, V_{GS} = 0V			-1.2	V
DYNAMIC CHARACTERISTICS (note 4)						
Input Capacitance	C_{iss}	V_{DS} =-16V,V_{GS} =0V,f =1MHz			170	pF
Output Capacitance	C_{oss}				25	pF
Reverse Transfer Capacitance	C_{rss}				15	pF
SWITCHING CHARACTERISTICS (note 3,4)						
Turn-on delay time	$t_{d(on)}$	V_{GS}=-4.5V,V_{DS}=-10V, I_D=-200mA,R_{GEN}=10Ω		9		ns
Turn-on rise time	t_r			5.8		ns
Turn-off delay time	$t_{d(off)}$			32.7		ns
Turn-off fall time	t_f			20.3		ns

SOT23-6 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°