2N7002TB

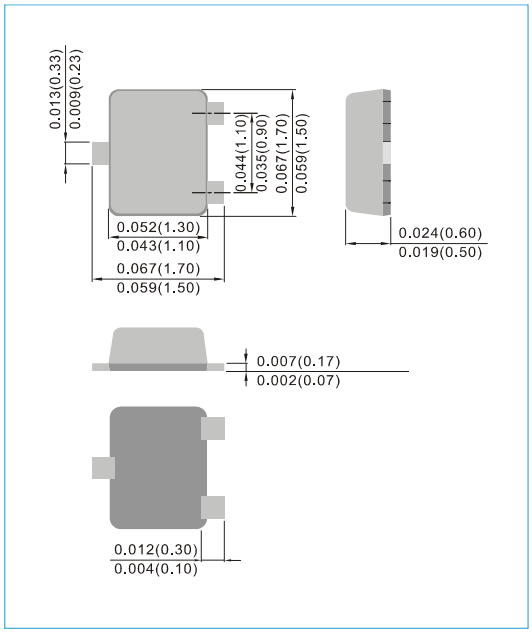
60V N-CHANNEL ENHANCEMENT MODE MOSFET

FEATURES

- $R_{DS(ON)}$, V_{GS}@10V,I_{DS}@500mA=5Ω
- $R_{DS(ON)}$, V_{GS}@4.5V,I_{DS}@50mA=7.5Ω

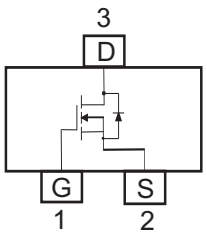
- Advanced Trench Process Technology
- High Density Cell Design For Ultra Low On-Resistance
- Specially Designed for Battery Operated Systems, Solid-State Relays Drivers : Relays, Displays, Lamps, Solenoids, Memories, etc.
- Lead free in compliance with EU RoHS 2011/65/EU directive
- Green molding compound as per IEC61249 Std.. (Halogen Free)

SOT-523 Unit : inch(mm)



MECHANICAL DATA

- Case: SOT-523, Plastic
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.00007 ounce, 0.002 gram
- Marking: 72



Maximum Ratings and Thermal Characteristics (T_A=25°C unless otherwise noted)

PARAMETER		SYMBOL	LIMIT	UNITS
Drain-Source Voltage		V_{DS}	60	V
Gats-Source Voltage		V_{GS}	±20	V
Continous Drain Current		I_D	115	mA
Pulsed Drain Current [1]		I_{DM}	800	mA
Maximum Power Dissipation	T_A=25°C T_A=75°C	P_D	150 90	mW
Junction-to Ambient Thermal Resistance (PCB mounted)[2]		$R_{\Theta JA}$	833	°C/W
Operating Junction and Storage Temperature Range		T_J,T_{STG}	-55 to 150	°C

Note:1.Maximum DC current limited by the package

2.Surface mounted on FR4 board,t≤10 sec

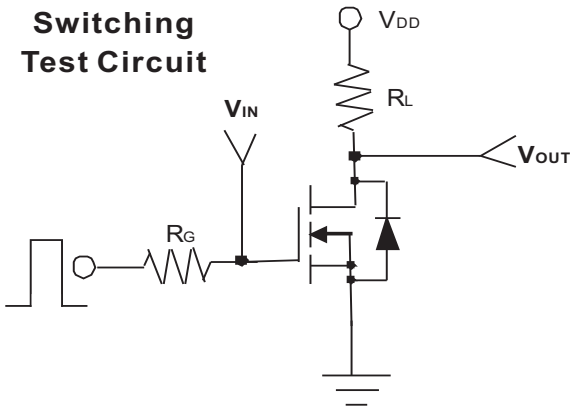
3.Pulse width≤300us, Duty cycle≤2%

2N7002TB

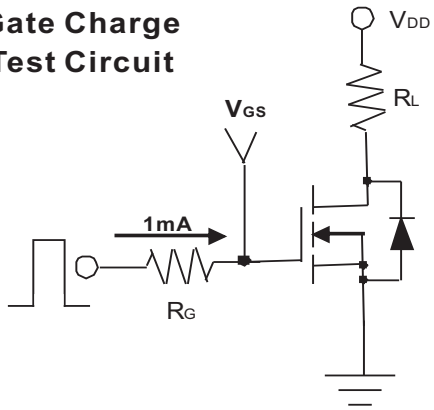
ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Static						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D=10μA	60	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	1	-	2.5	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=4.5V, I_D=50mA	-	-	7.5	Ω
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=500mA	-	-	5	
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V,V_{GS}=0V	-	-	1	μA
Gate Body Leakage	I_{GSS}	V_{GS}=±20V,V_{DS}=0V	-	-	±100	nA
Forward Transconductance	g_{FS}	V_{DS}=15V, I_D=250mA	100	-	-	mS
Dynamic						
Total Gate Charge	Q_G	V_{DS}=15V, I_D=500mA, V_{GS}=4.5V	-	0.6	0.7	nC
Gate-Source Charge	Q_{GS}		-	0.1	-	
Gate-Drain Charge	Q_{GD}		-	0.08	-	
Turn-On Delay Time	t_{ON}	V_{DD}=10V,R_L=20Ω I_D=500mA,V_{GEN}=10V,R_G=10Ω	-	9	15	ns
Turn-Off Delay Time	t_{OFF}		-	21	26	
Input Capacitance	C_{ISS}	V_{DS}=25V, V_{GS}=0V, f=1.0MHz	-	-	50	pF
Output Capacitance	C_{OSS}		-	-	25	
Reverse Transfer Capacitance	C_{RSS}		-	-	5	
Source-Drain Diode						
Max.Diode Forward Current	I_S	-	-	-	250	mA
Diode Foreard Voltage	V_{SD}	I_S=250mA,V_{GS}=0V	-	0.93	1.2	

Switching Test Circuit



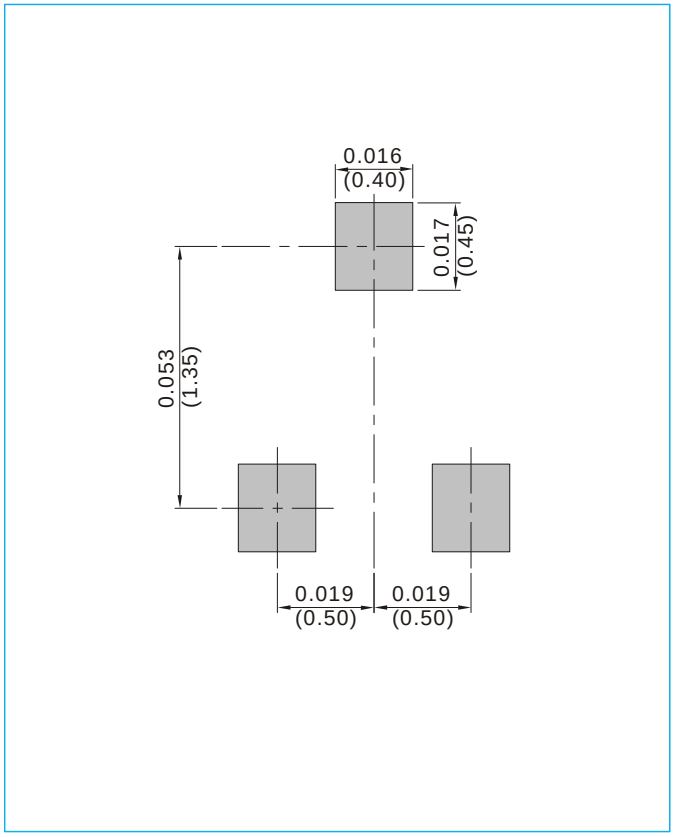
Gate Charge Test Circuit



2N7002TB

MOUNTING PAD LAYOUT

SOT-523 Unit : inch(mm)



ORDER INFORMATION

- Packing information

  T/R - 4K per 7" plastic Reel

2N7002TB

Part No_packing code_Version

2N7002TB_R1_00001

For example :

RB500V-40_R2_00001

Packing Code XX				Version Code XXXXX		
Packing type	1st Code	Packing size code	2nd Code	HF or RoHS	1st Code	2nd~5th Code
Tape and Ammunition Box (T/B)	A	N/A	0	HF	0	serial number
Tape and Reel (T/R)	R	7"	1	RoHS	1	serial number
Bulk Packing (B/P)	B	13"	2			
Tube Packing (T/P)	T	26mm	X			
Tape and Reel (Right Oriented) (TRR)	S	52mm	Y			
Tape and Reel (Left Oriented) (TRL)	L	PANASERT T/B CATHODE UP (PBCU)	U			
FORMING	F	PANASERT T/B CATHODE DOWN (PBCD)	D			

2N7002TB

Disclaimer

- Reproducing and modifying information of the document is prohibited without permission from Panjit International Inc..

- Panjit International Inc. reserves the rights to make changes of the content herein the document anytime without notification. Please refer to our website for the latest document.

- Panjit International Inc. disclaims any and all liability arising out of the application or use of any product including damages incidentally and consequentially occurred.

- Panjit International Inc. does not assume any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

- Applications shown on the herein document are examples of standard use and operation. Customers are responsible in comprehending the suitable use in particular applications. Panjit International Inc. makes no representation or warranty that such applications will be suitable for the specified use without further testing or modification.

- The products shown herein are not designed and authorized for equipments requiring high level of reliability or relating to human life and for any applications concerning life-saving or life-sustaining, such as medical instruments, transportation equipment, aerospace machinery et cetera. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Panjit International Inc. for any damages resulting from such improper use or sale.

- Since Panjit uses lot number as the tracking base, please provide the lot number for tracking when complaining.