

PJT7603

Complementary Enhancement Mode MOSFET – ESD Protected

Voltage 50 / -60V **Current** 0.4A / -0.25A

Features

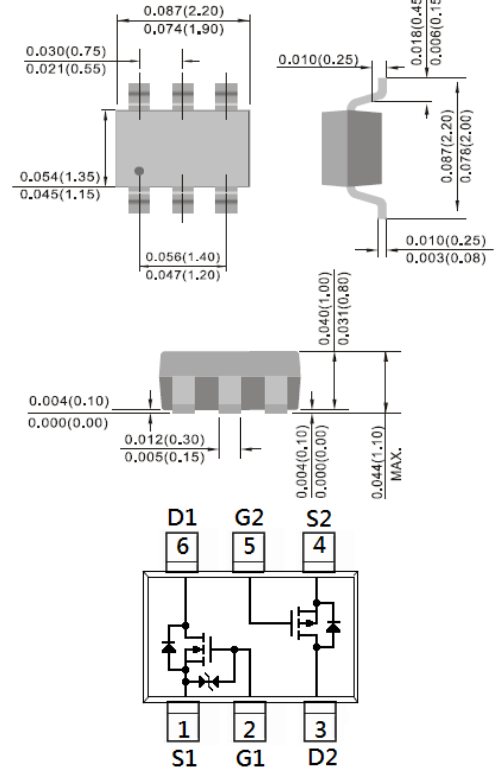
- Advanced Trench Process Technology
- Specially Designed for Switch Load, PWM Application, etc.
- ESD Protected 2KV HBM
- Lead free in compliance with EU RoHS 2011/65/EU directive
- Green molding compound as per IEC61249 Std. (Halogen Free)

Mechanical Data

- Case: SOT-363 Package
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.0002 ounces, 0.006 grams
- Marking: T63

SOT-363

Unit: inch(mm)



Maximum Ratings and Thermal Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

PARAMETER		SYMBOL	N-Ch LIMIT	P-Ch LIMIT	UNITS
Drain-Source Voltage		V _{DS}	50	-60	V
Gate-Source Voltage		V _{GS}	±20	±20	V
Continuous Drain Current		I _D	400	-250	mA
Pulsed Drain Current (Note 4)		I _{DM}	1200	-900	mA
Power Dissipation	T _a =25°C	P _D	350		mW
	Derate above 25°C		2.8		mW/°C
Operating Junction and Storage Temperature Range		T _J , T _{STG}	-55~150		°C
Typical Thermal resistance - Junction to Ambient (Note 3)		R _{θJA}	357		°C/W



PJT7603

N-Channel Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Static						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D = 250uA	50	-	-	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D = 250uA	0.5	0.9	1.0	V
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 500mA	-	1.2	1.5	Ω
		V _{GS} = 4.5V, I _D = 200mA	-	1.3	2.5	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 50V, V _{GS} =0V	-	-	1	uA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±10	uA
Dynamic (Note 5)						
Total Gate Charge	Q _g	V _{DS} =25V, I _D =500mA, V _{GS} =4.5V	-	0.95	-	nC
Gate-Source Charge	Q _{gs}		-	0.34	-	
Gate-Drain Charge	Q _{gd}		-	0.32	-	
Input Capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, f=1.0MHZ	-	36	-	pF
Output Capacitance	C _{oss}		-	11	-	
Reverse Transfer Capacitance	C _{rss}		-	6.6	-	
Turn-On Delay Time	td _(on)	V _{DD} =25V, I _D =500mA, V _{GS} =10V, R _G =6Ω (Note 1,2)	-	2.3	-	ns
Turn-On Rise Time	tr		-	20	-	
Turn-Off Delay Time	td _(off)		-	7	-	
Turn-Off Fall Time	tf		-	20	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I _S	---	-	-	400	mA
Diode Forward Voltage	V _{SD}	I _S = 500mA, V _{GS} =0V	-	0.9	1.5	V

NOTES :

1. Pulse width $\leq 300\mu s$, Duty cycle $\leq 2\%$
2. Essentially independent of operating temperature typical characteristics.
3. $R_{\theta JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins mounted on a 1 inch FR-4 with 2oz. square pad of copper.
4. The maximum current rating is package limited.
5. Guaranteed by design, not subject to production testing.



PJT7603

P-Channel Electrical Characteristics (T_A=25°C unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Static						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =-250uA	-60	-	-	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250uA	-1.0	-1.5	-2.5	V
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =-10V, I _D =-500mA	-	2.4	4	Ω
		V _{GS} =-4.5V, I _D =-200mA	-	2.7	6	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-48V, V _{GS} =0V	-	-	-1	uA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =+20V, V _{DS} =0V	-	-	+100	nA
Dynamic ^(Note 5)						
Total Gate Charge	Q _g	V _{DS} =-25V, I _D =-100mA, V _{GS} =-4.5V	-	1.1	-	nC
Gate-Source Charge	Q _{gs}		-	0.3	-	
Gate-Drain Charge	Q _{gd}		-	0.2	-	
Input Capacitance	C _{iss}	V _{DS} =-25V, V _{GS} =0V, f=1.0MHZ	-	51	-	pF
Output Capacitance	C _{oss}		-	15	-	
Reverse Transfer Capacitance	C _{rss}		-	2.2	-	
Turn-On Delay Time	td _(on)	V _{DD} =-25V, I _D =-100mA, V _{GS} =-10V, R _G =6Ω ^(Note 1,2)	-	4.8	-	ns
Turn-On Rise Time	tr		-	19	-	
Turn-Off Delay Time	td _(off)		-	52	-	
Turn-Off Fall Time	tf		-	32	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I _S	---	-	-	-250	mA
Diode Forward Voltage	V _{SD}	I _S =-500mA, V _{GS} =0V	-	-0.9	-1.5	V

PJT7603

N-Channel TYPICAL CHARACTERISTIC CURVES

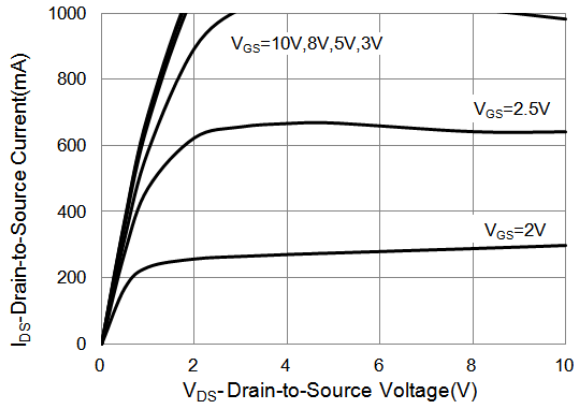


Fig.1 On-Region Characteristics

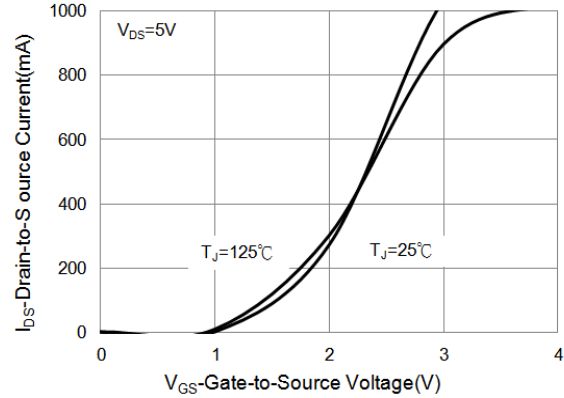


Fig.2 Transfer Characteristics

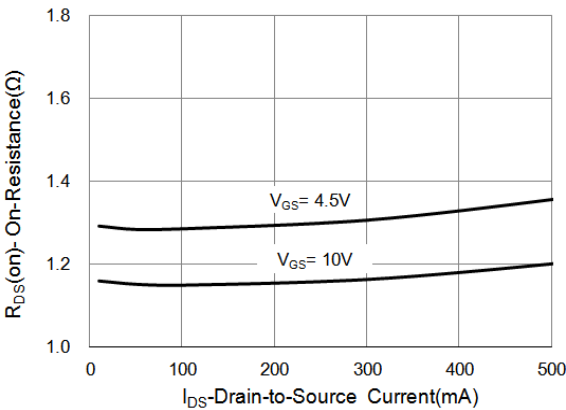


Fig.3 On-Resistance vs. Drain Current

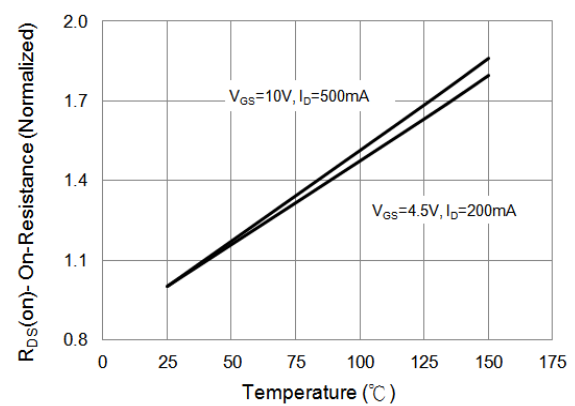


Fig.4 On-Resistance vs. Junction temperature

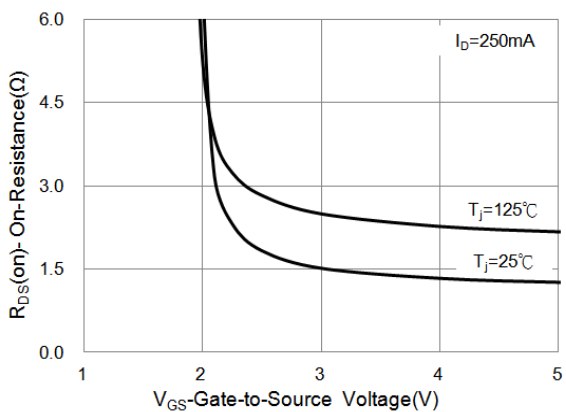


Fig.5 On-Resistance Variation with VGS.

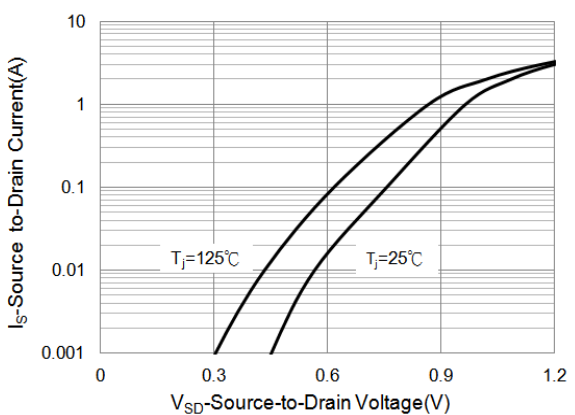


Fig.6 Body Diode Characteristics

PJT7603

N-Channel TYPICAL CHARACTERISTIC CURVES

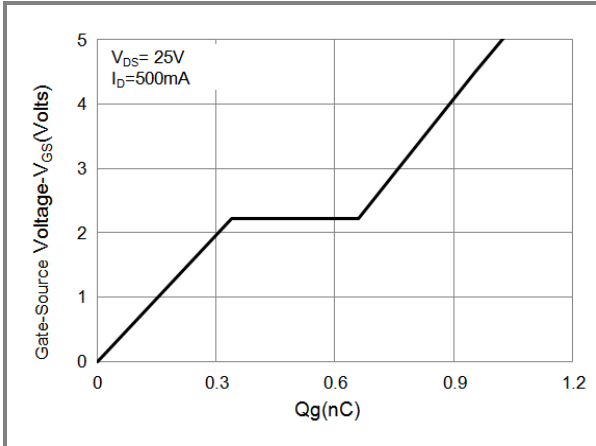


Fig.7 Gate-Charge Characteristics

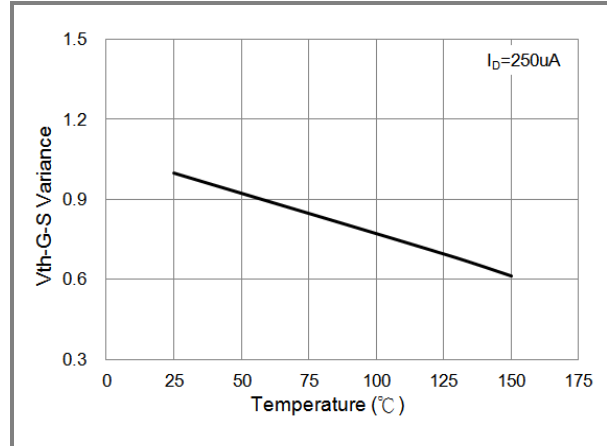


Fig.8 Threshold Voltage Variation with Temperature.

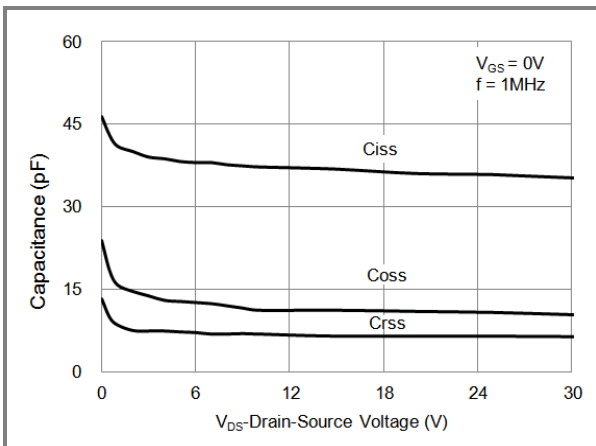
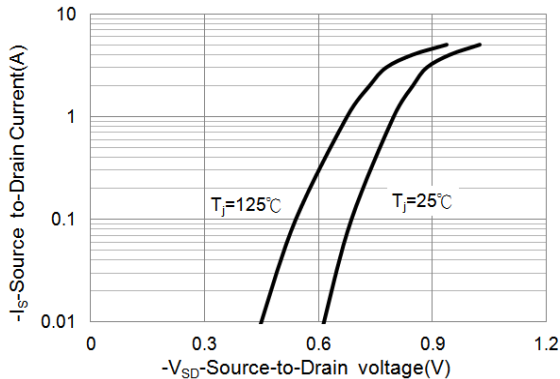
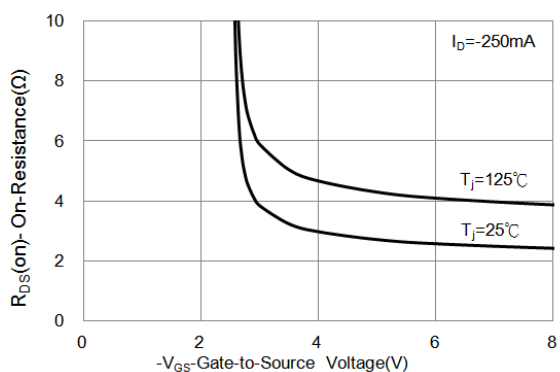
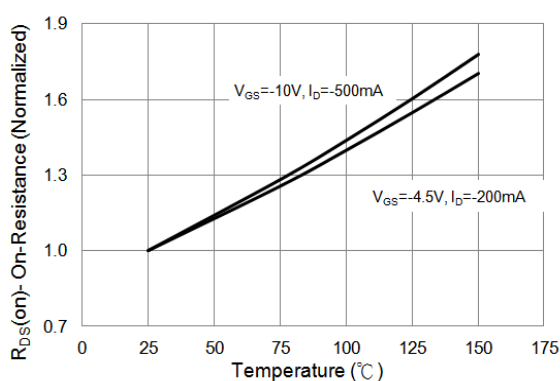
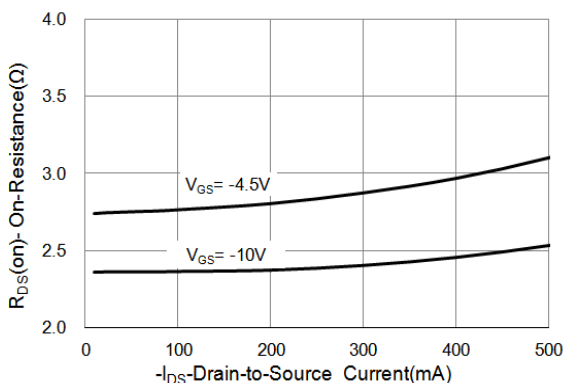
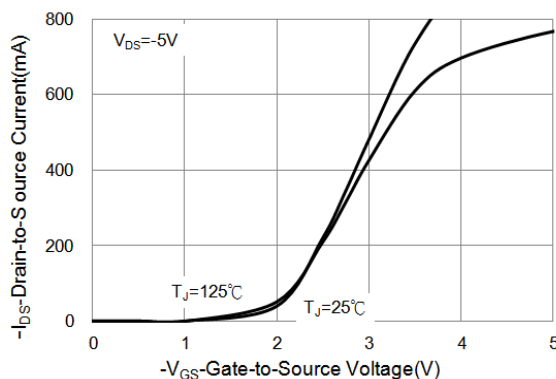
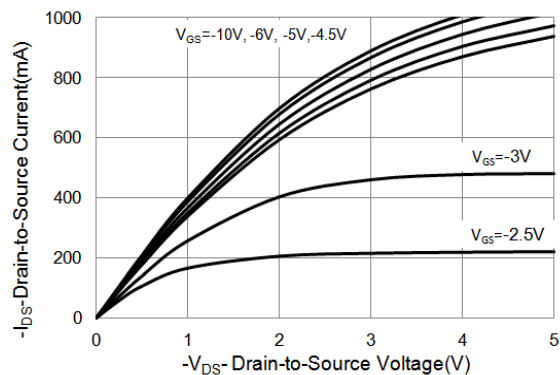


Fig.9 Capacitance vs. Drain-Source Voltage.

PJT7603

P-Channel TYPICAL CHARACTERISTIC CURVES



PJT7603

P-Channel TYPICAL CHARACTERISTIC CURVES

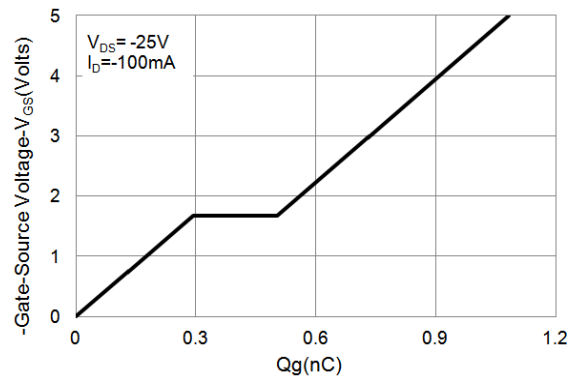


Fig.7 Gate-Charge Characteristics

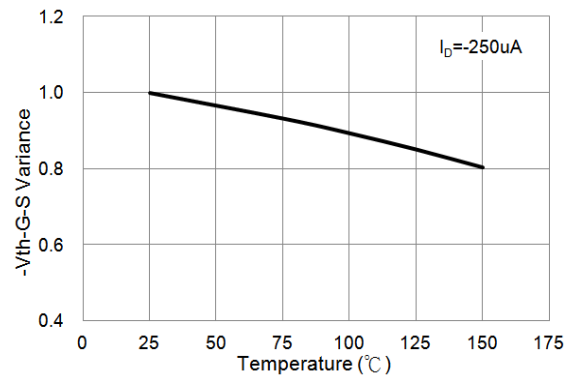


Fig.8 Threshold Voltage Variation with Temperature.

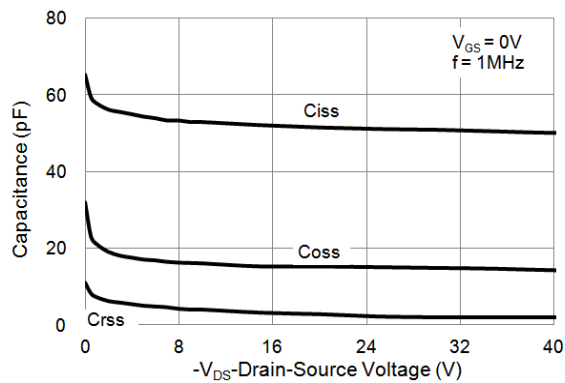


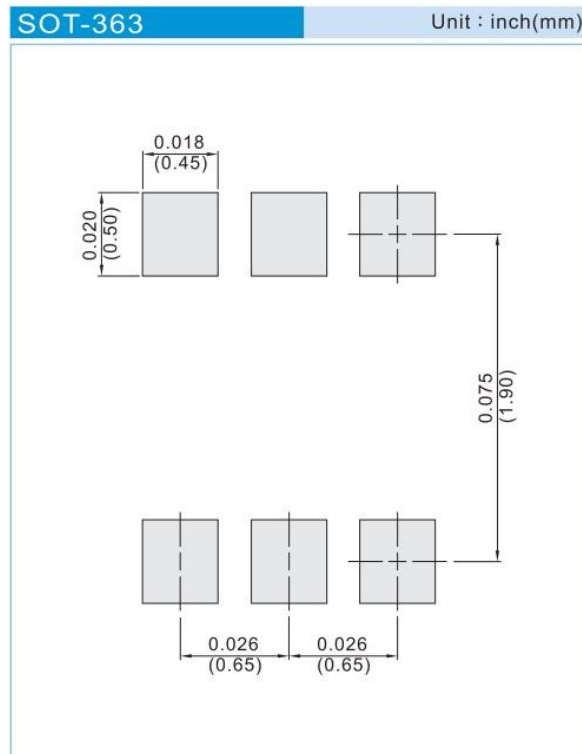
Fig.9 Threshold Voltage Variation with Temperature.

PJT7603

PART NO PACKING CODE VERSION

Part No Packing Code	Package Type	Packing type	Marking	Version
PJT7603_R1_00001	SOT-363	3K pcs / 7" reel	T63	Halogen free
PJT7603_R2_00001	SOT-363	10K pcs / 13" reel	T63	Halogen free

MOUNTING PAD LAYOUT





PJT7603

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.