

PJT7816

20V N-Channel Enhancement Mode MOSFET

Voltage 20 V **Current** 750 mA

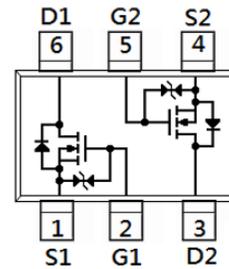
Features

- Advanced Trench Process Technology
- ESD Protected
- Specially Designed for Switch Load, PWM Application, etc
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

Mechanical Data

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

SOT-363



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

PARAMETER		SYMBOL	LIMIT	UNITS
Drain-Source Voltage		V _{DS}	20	V
Gate-Source Voltage		V _{GS}	±8	
Continuous Drain Current ^(Note 4)	T _A =25°C	I _D	750	mA
Pulsed Drain Current ^(Note 1)		I _{DM}	3000	
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
Thermal Resistance		R _{θJA}	357	°C/W
- Junction to Ambient ^(Note 3,4)				

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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	20	-	-	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250uA	0.5	0.65	1	
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =4.5V, I _D =500mA	-	300	400	mΩ
		V _{GS} =2.5V, I _D =400mA	-	350	500	
		V _{GS} =1.8V, I _D =200mA	-	400	650	
		V _{GS} =1.5V, I _D =100mA	-	450	1000	
		V _{GS} =1.2V, I _D =10mA	-	600	2000	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =20V, V _{GS} =0V	-	-	1	uA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±8V, V _{DS} =0V	-	-	±10	
Dynamic (Note 5)						
Total Gate Charge	Q _g	V _{DS} =10V, I _D =500mA, V _{GS} =4.5V (Note 2)	-	1.1	-	nC
Gate-Source Charge	Q _{gs}		-	0.2	-	
Gate-Drain Charge	Q _{gd}		-	0.1	-	
Input Capacitance	C _{iss}	V _{DS} =10V, V _{GS} =0V, f=1MHz	-	50	-	pF
Output Capacitance	C _{oss}		-	12	-	
Reverse Transfer Capacitance	C _{rss}		-	10	-	
Turn-On Delay Time	t _{d(on)}	V _{DD} =10V, I _D =500mA, V _{GS} =4.5V, R _G =6Ω (Note 2)	-	2	-	ns
Turn-On Rise Time	t _r		-	22	-	
Turn-Off Delay Time	t _{d(off)}		-	57	-	
Turn-Off Fall Time	t _f		-	34	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I _S	---	-	-	750	mA
Diode Forward Voltage	V _{SD}	I _S =500mA, V _{GS} =0V	-	0.9	1	V

NOTES :

1. Pulse width ≤ 300us, Duty cycle ≤ 2%.
2. Essentially independent of operating temperature typical characteristics.
3. R_{θJA} 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.

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TYPICAL CHARACTERISTIC CURVES

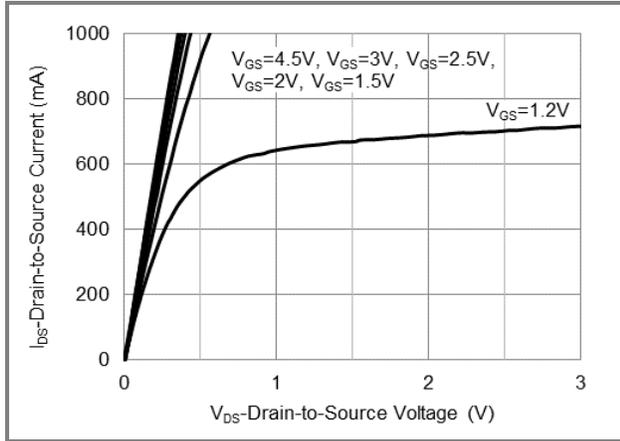


Fig.1 On-Region Characteristics

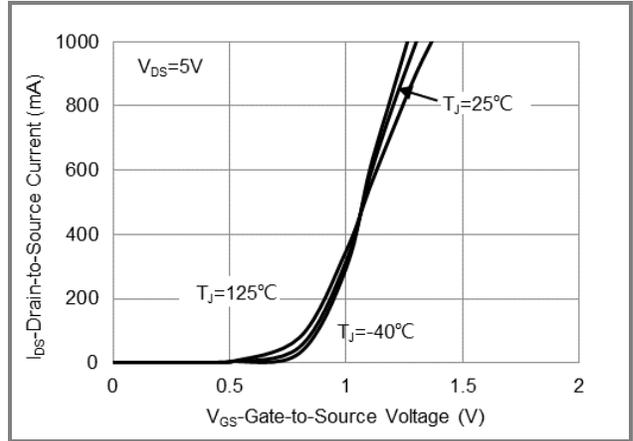


Fig.2 Transfer Characteristics

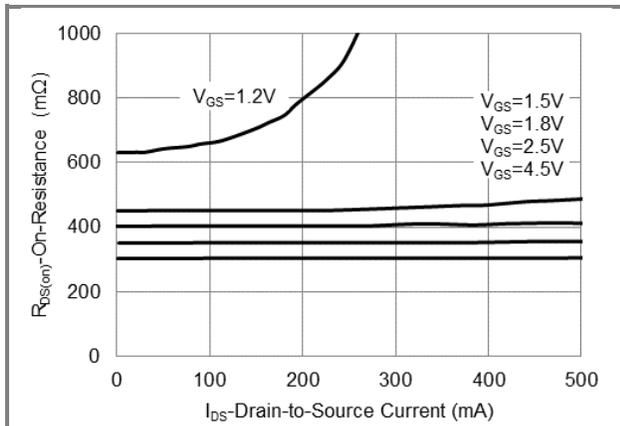


Fig.3 On-Resistance vs. Drain Current

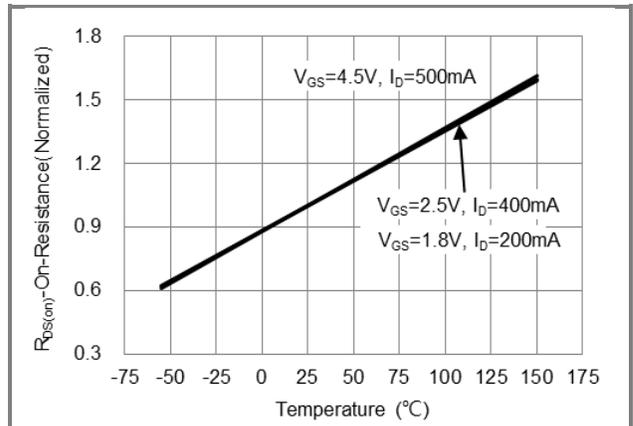


Fig.4 On-Resistance vs. Junction temperature

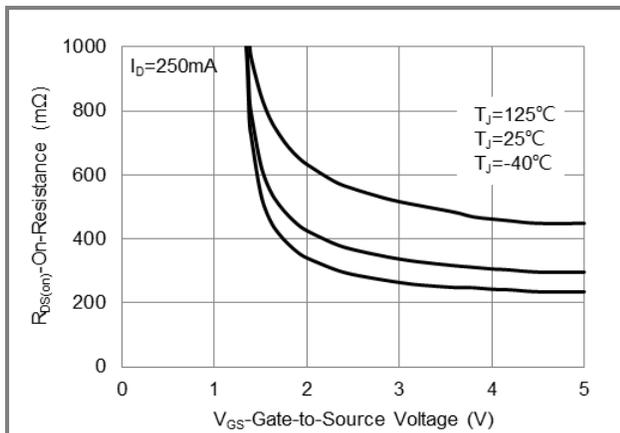


Fig.5 On-Resistance Variation with Vgs

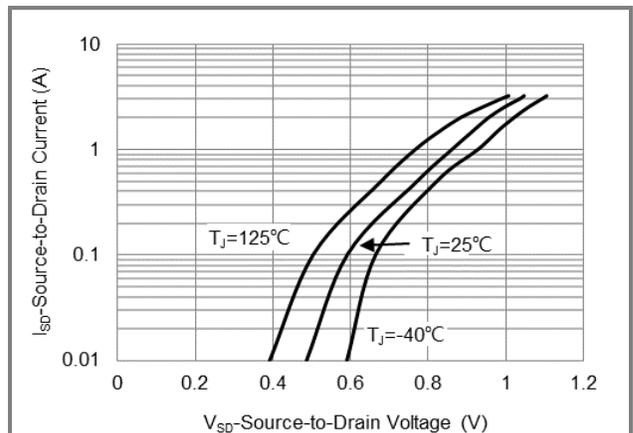


Fig.6 Source-Drain Diode Forward Voltage

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TYPICAL CHARACTERISTIC CURVES

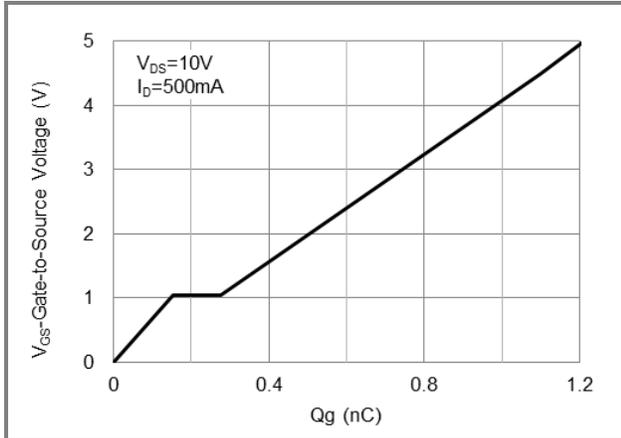


Fig.7 Gate-Charge Characteristics

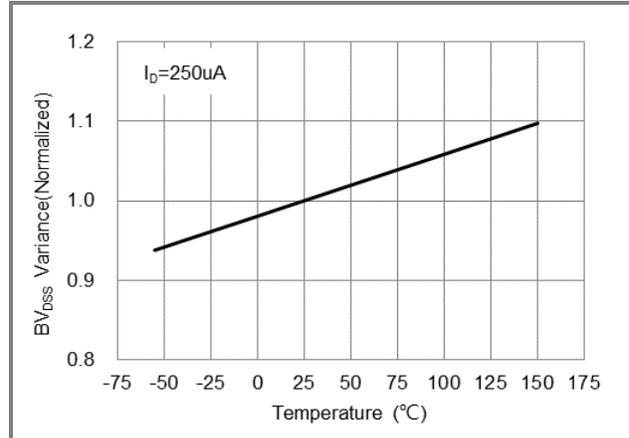


Fig.8 Breakdown Voltage Variation vs. Temperature

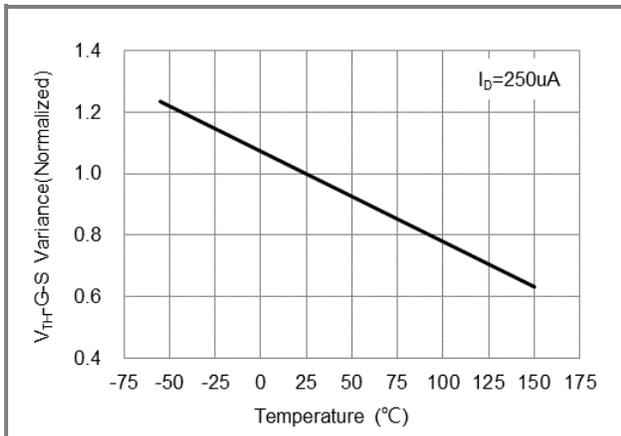


Fig.9 Threshold Voltage Variation with Temperature

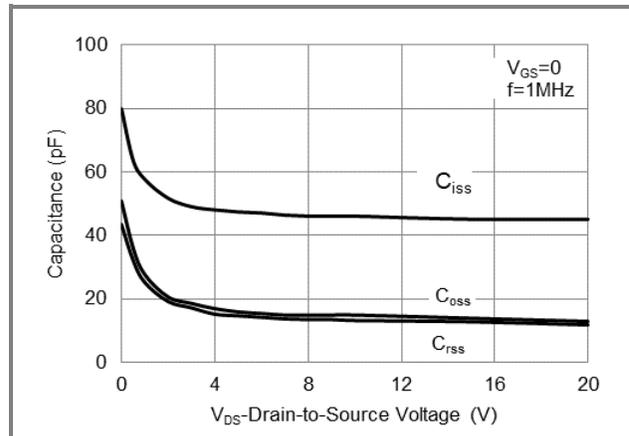


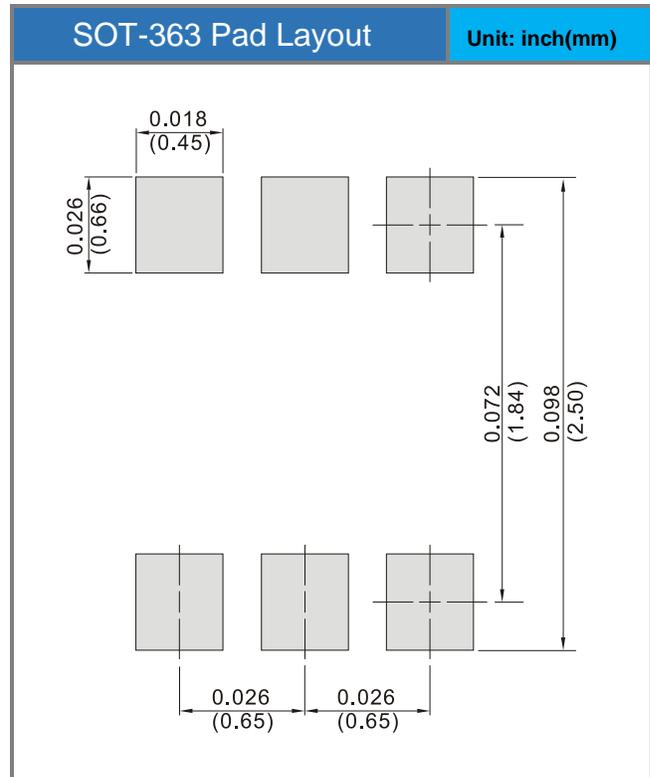
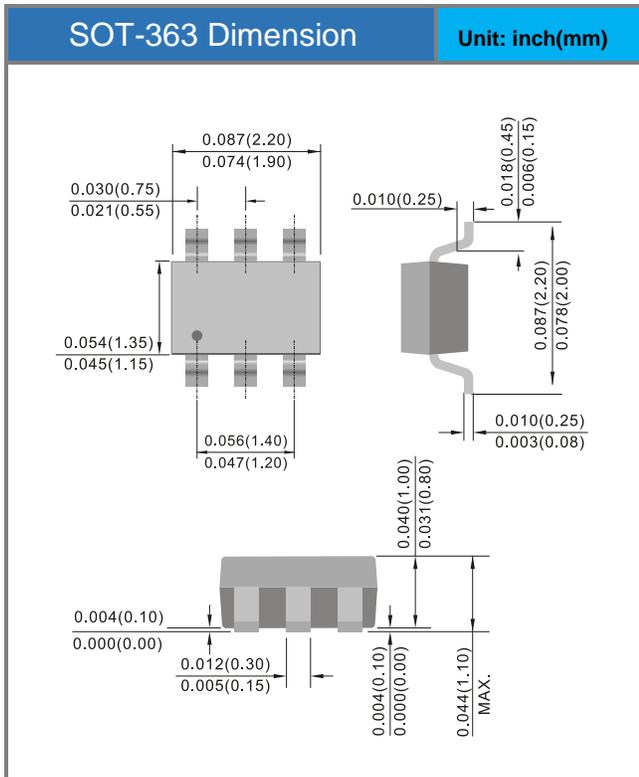
Fig.10 Capacitance vs. Drain-Source Voltage

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Product and Packing Information

Part No Packing Code	Package Type	Packing type	Marking
PJT7816	SOT-363	3K pcs / 7" reel	T16

Packaging Information & Mounting Pad Layout



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