

PJT7605-AU

60V Complementary Enhancement Mode MOSFET – ESD Protected

Voltage	60 / -60V	Current	250 mA
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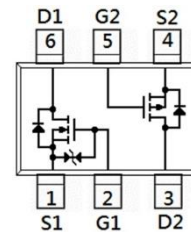
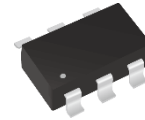
Features

- Advanced Trench Process Technology
- Specially Designed for Switch Load, PWM Application, etc.
- AEC-Q101 qualified
- 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 : 0.0002 ounces, 0.006 grams

SOT-363



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

PARAMETER		SYMBOL	N-Ch LIMIT	P-Ch LIMIT	UNITS
Drain-Source Voltage		V _{DS}	60	-60	V
Gate-Source Voltage		V _{GS}	±20	±20	V
Continuous Drain Current ^(Note 4)		I _D	250	-250	mA
Pulsed Drain Current ^(Note 1)		I _{DM}	1000	-1000	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		R _{θJA}	357		°C/W
- Junction to Ambient ^(Note 3)					

PJT7605-AU

N-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	1.5	2.5	V
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =10V, I _D = 500mA	-	1.7	3	Ω
		V _{GS} = 4.5V, I _D = 200mA	-	2.2	4	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 60V, V _{GS} =0V	-	-	1	uA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±10	uA
Dynamic						
Total Gate Charge	Q _g	V _{DS} =15V, I _D =200mA, V _{GS} =5V (Note 1,2)	-	0.7	-	nC
Gate-Source Charge	Q _{gs}		-	0.3	-	
Gate-Drain Charge	Q _{gd}		-	0.1	-	
Input Capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, f=1.0MHZ	-	23	-	pF
Output Capacitance	C _{oss}		-	13	-	
Reverse Transfer Capacitance	C _{rss}		-	7	-	
Switching						
Turn-On Delay Time	t _{d(on)}	V _{DD} =30V, I _D =200mA, V _{GS} =10V, R _G =10Ω (Note 1,2)	-	3	-	ns
Turn-On Rise Time	t _r		-	18	-	
Turn-Off Delay Time	t _{d(off)}		-	9	-	
Turn-Off Fall Time	t _f		-	22	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I _S	---	-	-	0.25	A
Diode Forward Voltage	V _{SD}	I _S = 200mA, V _{GS} =0V	-	0.8	1.3	V

PJT7605-AU

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	-0.8	-1.6	-2	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	-	2.8	6	
		V _{GS} = -2.5V, I _D = -50mA	-	4.7	13	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-60V, V _{GS} =0V	-	-	-1	uA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
Dynamic						
Total Gate Charge	Q _g	V _{DS} =-25V, I _D =-100mA, V _{GS} =-4.5V(Notes 1,2)	-	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	-	
Switching						
Turn-On Delay Time	t _{d(on)}	V _{DD} =-25V, I _D =-100mA, V _{GS} =-10V, R _G =6Ω (Note 1,2)	-	4.8	-	ns
Turn-On Rise Time	t _r		-	19	-	
Turn-Off Delay Time	t _{d(off)}		-	52	-	
Turn-Off Fall Time	t _f		-	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	-	-0.95	-1.3	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.

PJT7605-AU

N-Channel TYPICAL CHARACTERISTIC CURVES

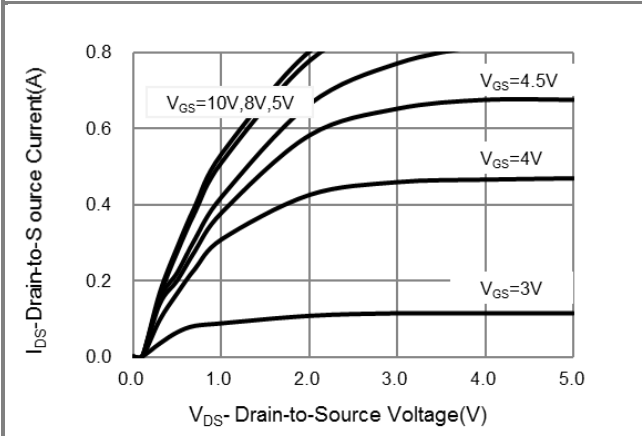


Fig.1 Output Characteristics

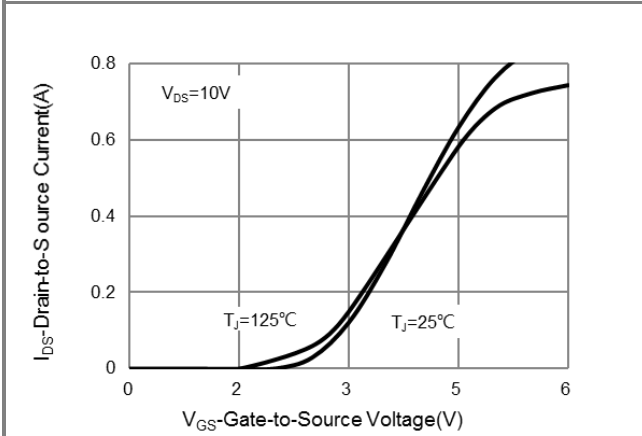


Fig.2 Transfer Characteristics

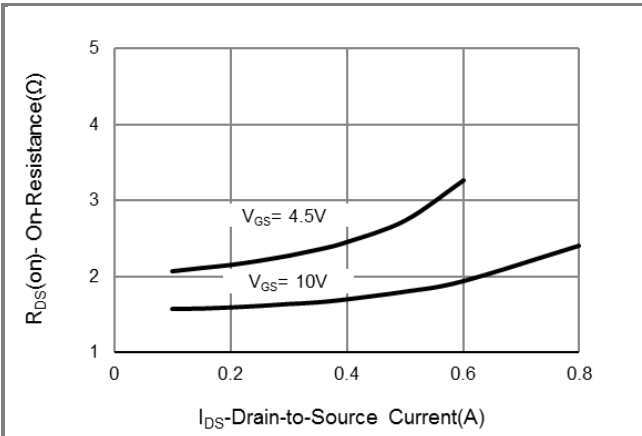


Fig.3 On-Resistance vs. Drain Current

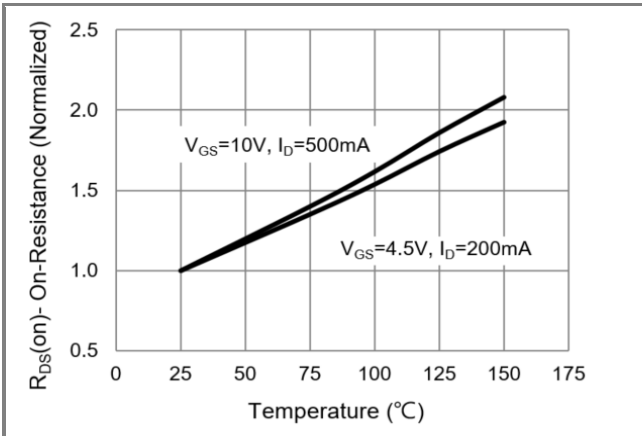


Fig.4 On-Resistance vs. Junction temperature

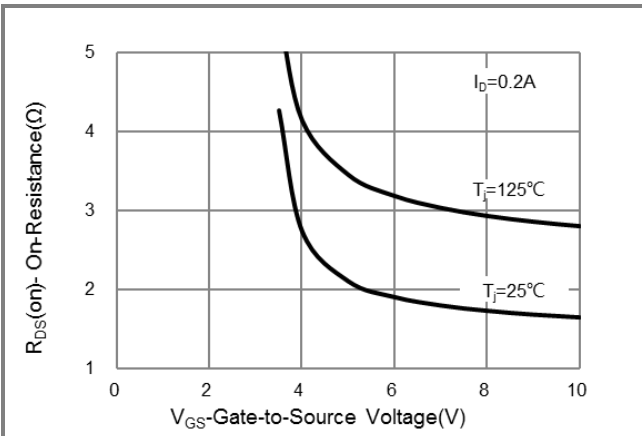


Fig.5 On-Resistance Variation with V_{GS}

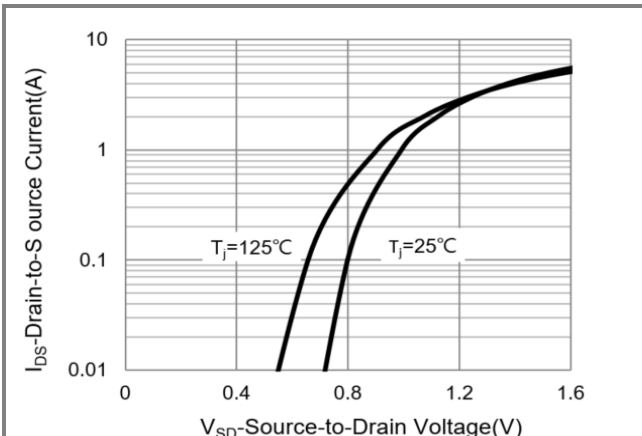


Fig.6 Source-Drain Diode Forward Voltage

PJT7605-AU

N-Channel TYPICAL CHARACTERISTIC CURVES

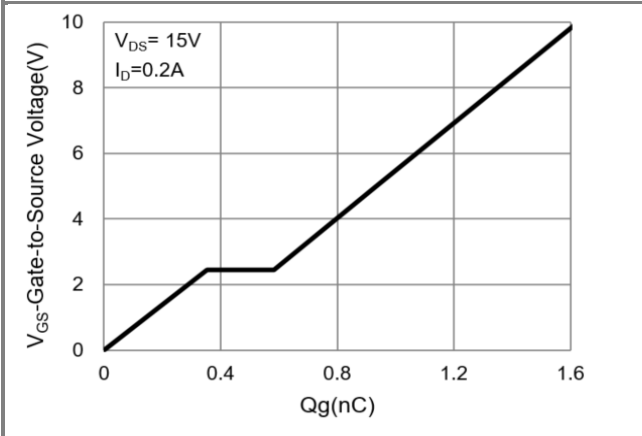


Fig.7 Gate-Charge Characteristics

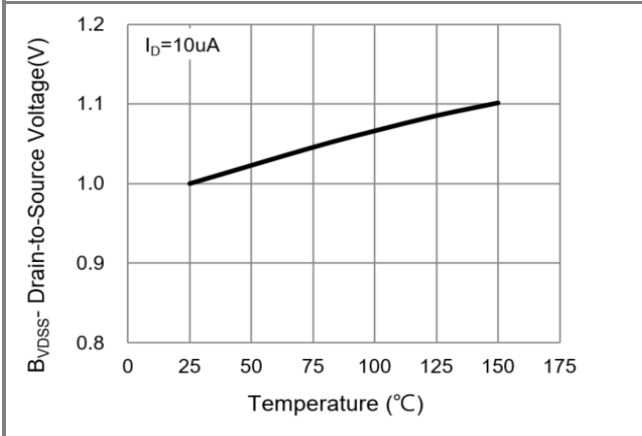


Fig.8 Breakdown Voltage Variation vs. Temperature

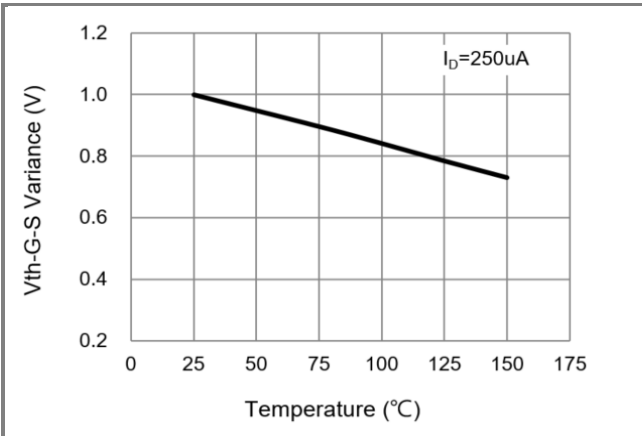


Fig.9 Threshold Voltage Variation with Temperature

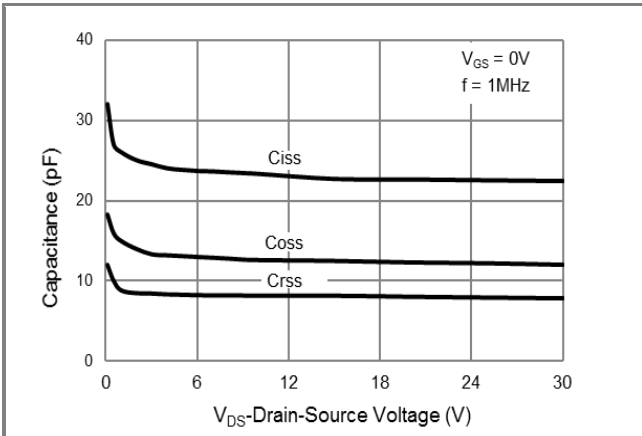


Fig.10 Capacitance vs. Drain-Source Voltage

PJT7605-AU

P-Channel TYPICAL CHARACTERISTIC CURVES

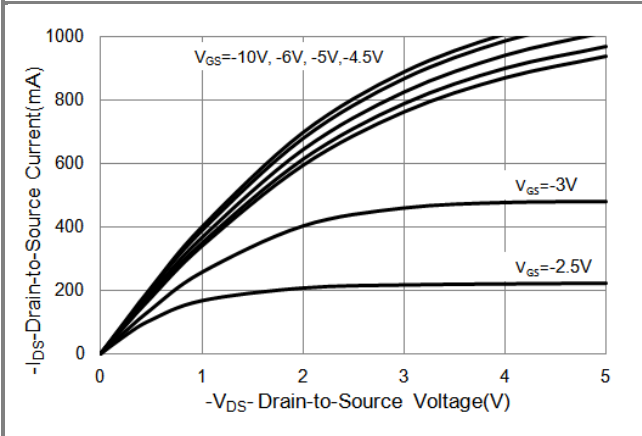


Fig.1 Output Characteristics

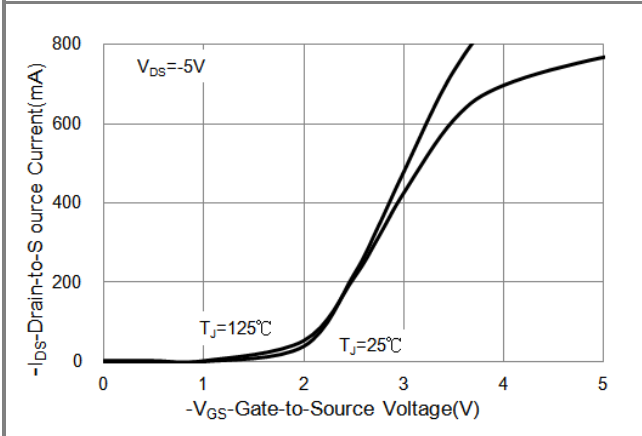


Fig.2 Transfer Characteristics

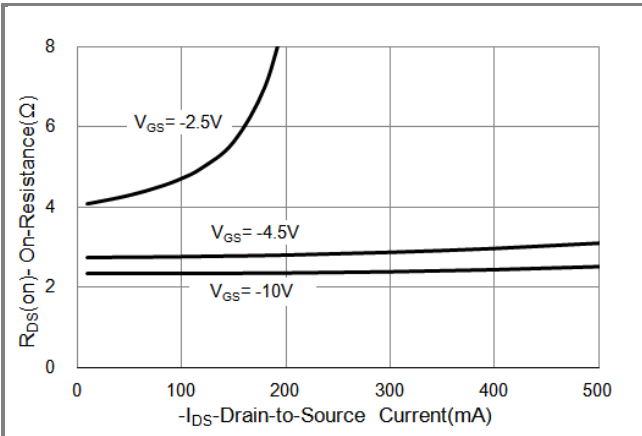


Fig.3 On-Resistance vs. Drain Current

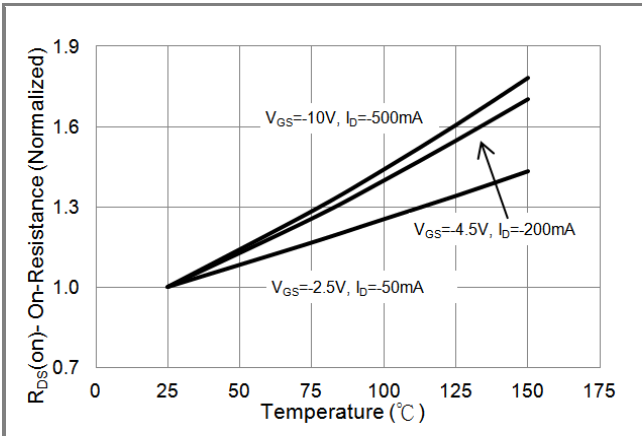


Fig.4 On-Resistance vs. Junction temperature

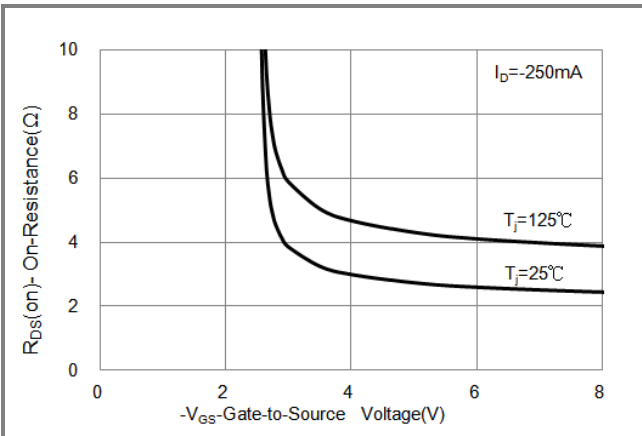


Fig.5 On-Resistance Variation with V_GS

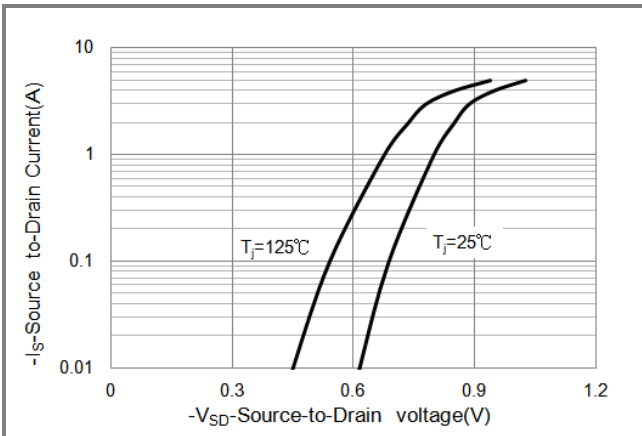


Fig.6 Source-Drain Diode Forward Voltage

PJT7605-AU

P-Channel TYPICAL CHARACTERISTIC CURVES

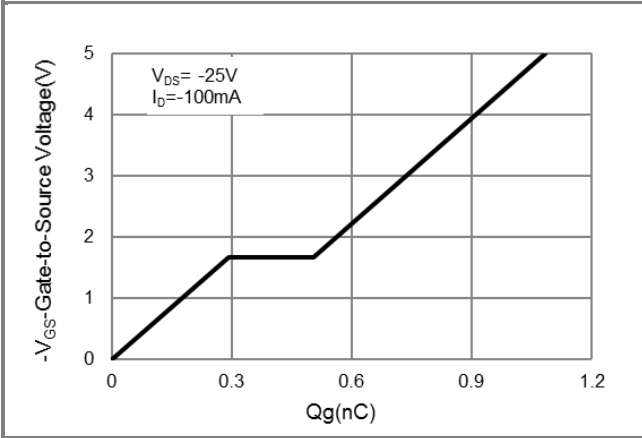


Fig.7 Gate-Charge Characteristics

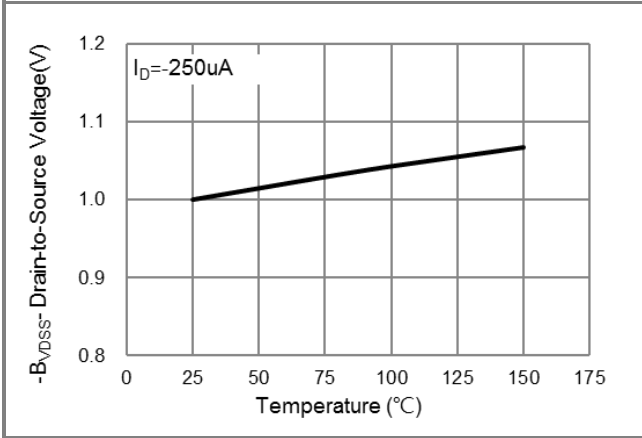


Fig.8 Breakdown Voltage Variation vs. Temperature

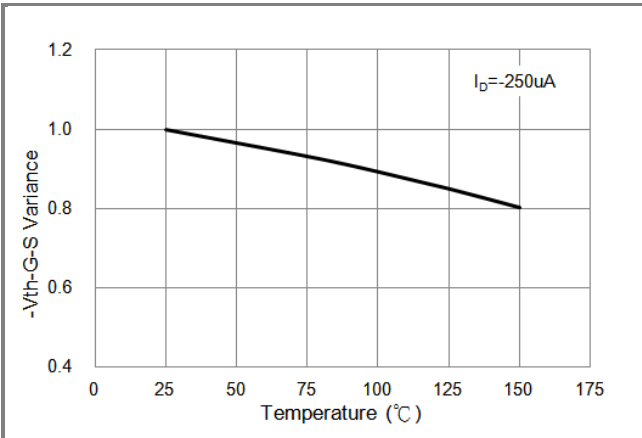


Fig.9 Threshold Voltage Variation with Temperature

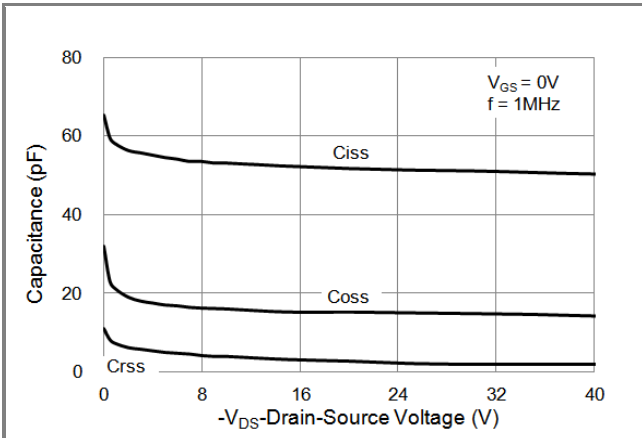


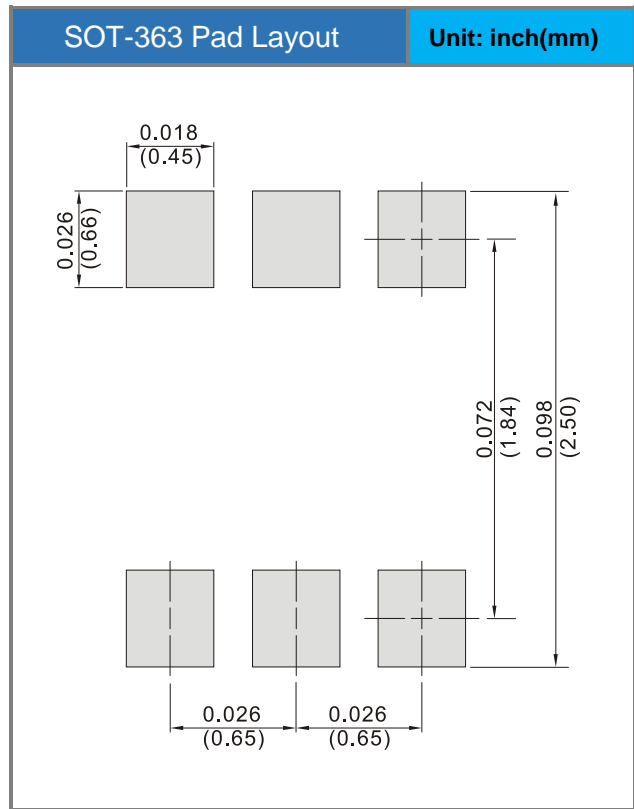
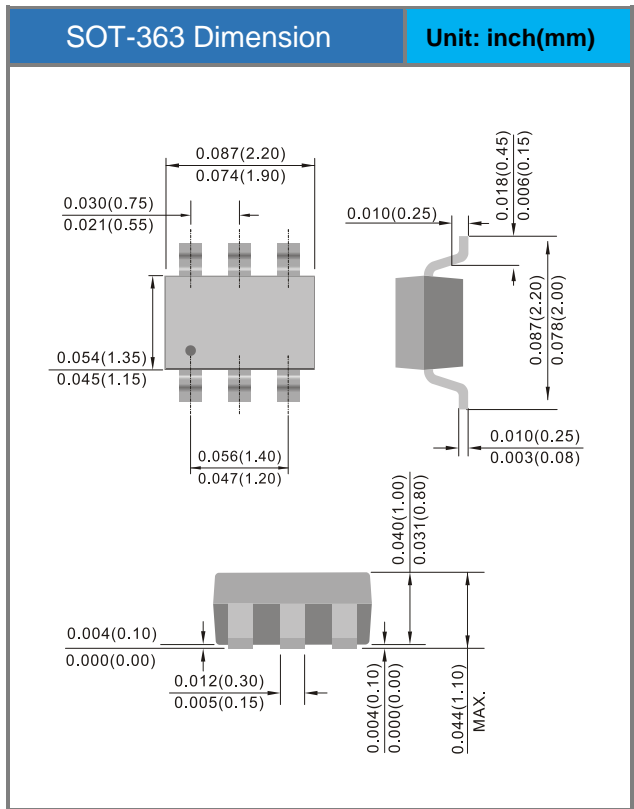
Fig.10 Capacitance vs. Drain-Source Voltage

PJT7605-AU

Product and Packing Information

Part No.	Package Type	Packing Type	Marking
PJT7605-AU	SOT-363	3K pcs / 7" reel	T65

Packaging Information & Mounting Pad Layout



PJT7605-AU

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