



PJS6630

20V P- MOSFET Load Switch with Level Shift & Adjustable Slew Rate

Voltage

20 V

Current

3.6A

Features

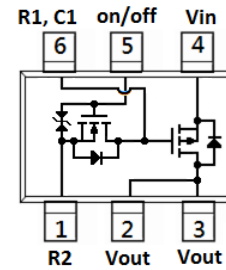
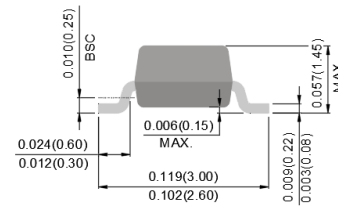
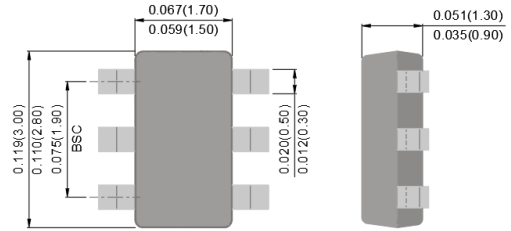
- $V_{drop} = 0.2V @ V_{in}=12V, I_L=3.6A, R_{DS(ON)}= 53m\Omega$
- $V_{drop} = 0.2V @ V_{in}=5.0V, I_L=3.4A, R_{DS(ON)}= 57m\Omega$
- $V_{drop} = 0.2V @ V_{in}=2.5V, I_L=2.8A, R_{DS(ON)}= 70m\Omega$
- Advanced Trench Process Technology
- Adjustable Turn on/off Slew Rate Control through external R1, R2 and C1.
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

Mechanical Data

- Case: SOT-23 6L Package
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.0005 ounces, 0.014 grams
- Marking: SL0

SOT-23 6L

Unit : inch(mm)



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

PARAMETER	SYMBOL	RATING	UNITS
Input Voltage Range ^(Note 1)	V _{IN}	20	V
On/Off Voltage Range	V _{ON} /V _{OFF}	12	V
Continuous Load Current ^(Note 2,3)	I _D	3.6	A
Pulsed Load Current ^(Note 4)	I _D	14.4	A
Power Dissipation ^(Note 2)	P _D	0.83	W
Operating Junction and Storage Temperature Range	T _J , T _{STG}	-55~150	°C
ESD, MIL-STD-883D HBM (100pF/1.5kohm) (Von/off pin)	V _{ESD}	2	kV
Typical Junction to Ambient ^(Note 2)	R _{θJA}	150	°C/W



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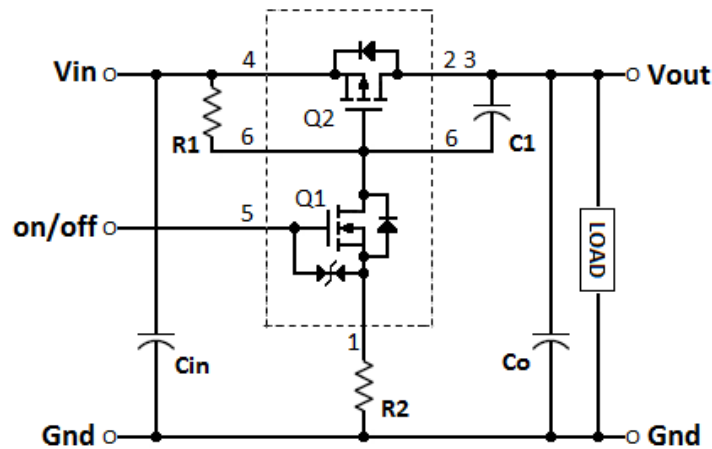
Electrical Characteristics (T_A=25°C unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Off Characteristics						
Leakage Current	I _{FL}	V _{IN} =20V, V _{ON} /V _{OFF} =0V	-	-	1	uA
Diode Forward Voltage	V _{SD}	I _S =-1.0A	-	-0.76	-1.2	V
On Characteristics						
Input Voltage Range	V _{IN}		2.5	-	20	V
On/Off Voltage Range	V _{ON} /V _{OFF}		2.5	-	12	V
Drain-Source On-State Resistance (Q2)	R _{DS(on)}	V _{GS} =-12V, I _D =-3.6A	-	45	53	mΩ
		V _{GS} =-5.0V, I _D =-3.4A	-	49	57	
		V _{GS} =-2.5V, I _D =-2.8A	-	59	70	

NOTES :

- V_{IN} Range can be up to 20V, but R1 and R2 must be scaled such that V_{GS} do not exceed 12V.
- 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
- The maximum current rating is package limited
- Pulse test: pulse width ≤ 300uS, duty cycle ≤ 2%

Application Circuits



Component Table		
R1	Pull-Up Resistor	Typical 10kΩ to 1MΩ
R2	Optional Slew-Rate Control	Typical 0kΩ to 100kΩ
C1	Optional Slew-Rate Control	Typical 1uF
Note: R1 should be at least 10 * R2 to ensure Q1 turn-on		



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TYPICAL CHARACTERISTIC CURVES

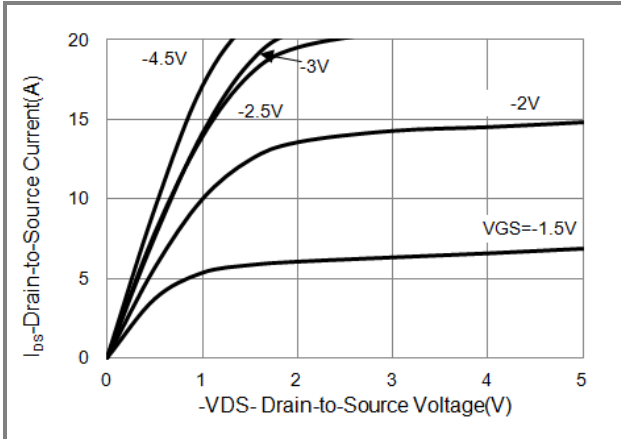


Fig.1 Output Characteristics

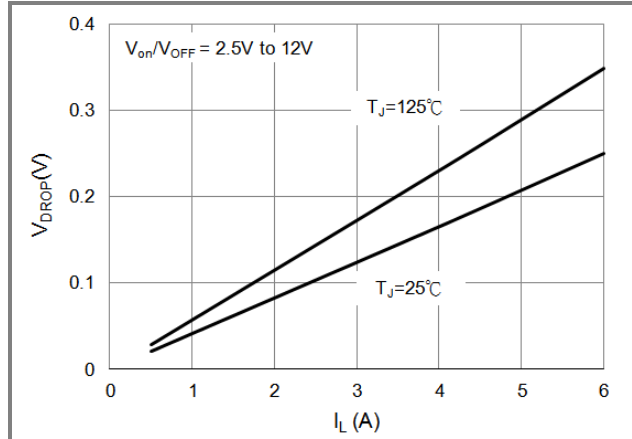


Fig.2 Vdrop vs Load Current at $V_{in}= 12V$

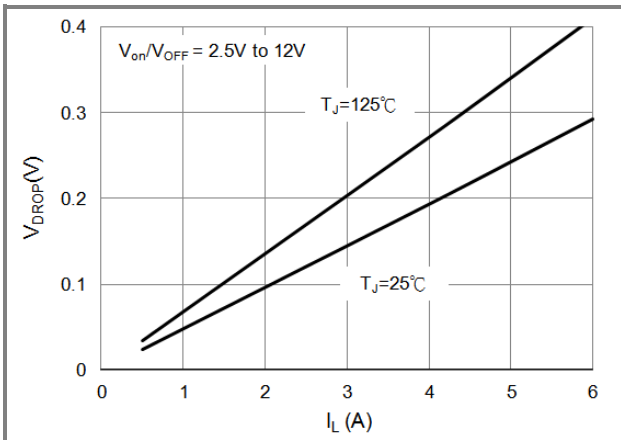


Fig.3 Vdrop vs Load Current at $V_{in}= 4.5V$

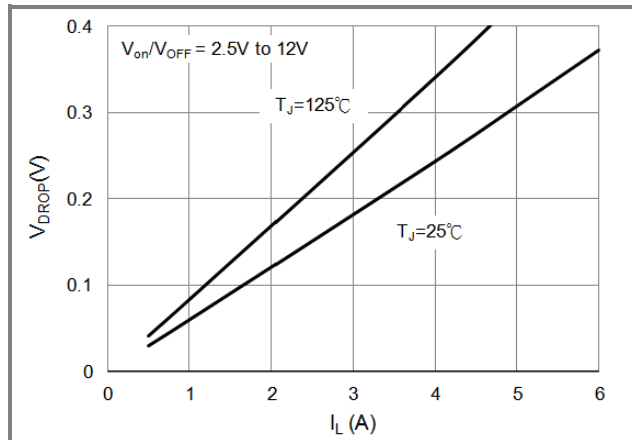


Fig.4 Vdrop vs Load Current at $V_{in}= 2.5V$

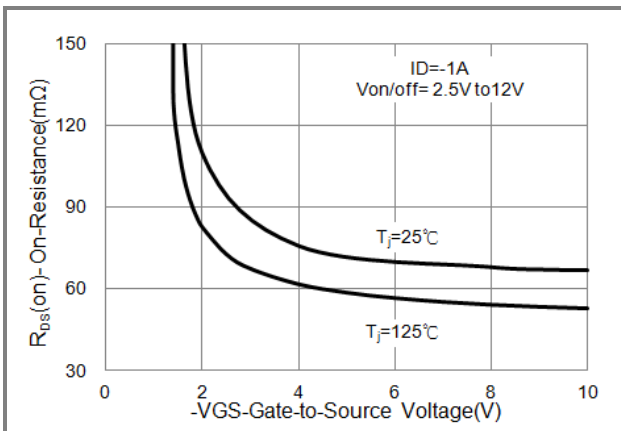


Fig.5 On-Resistance Variation with VGS.

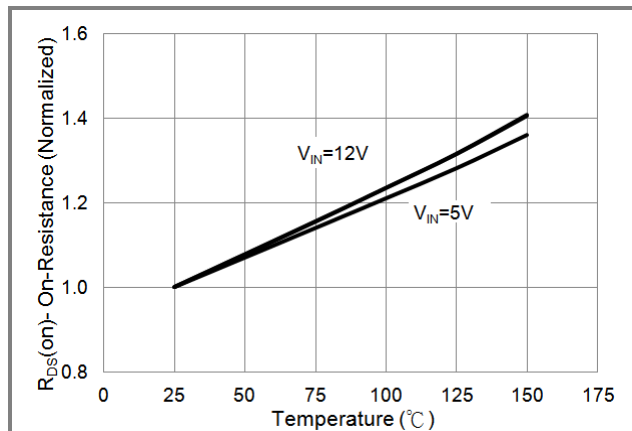


Fig.6 Normalize Rds(on) vs Junction Temperature



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TYPICAL CHARACTERISTIC CURVES

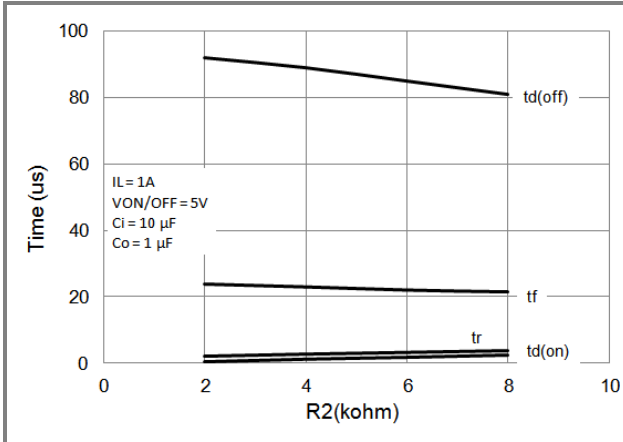


Fig.7 Switching Variation R2 at Vin=12V, R1=20k Ω

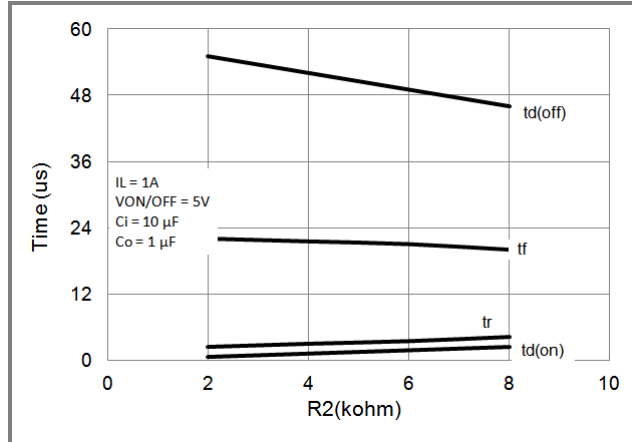


Fig.8 Switching Variation R2 at Vin= 5V, R1= 20k Ω

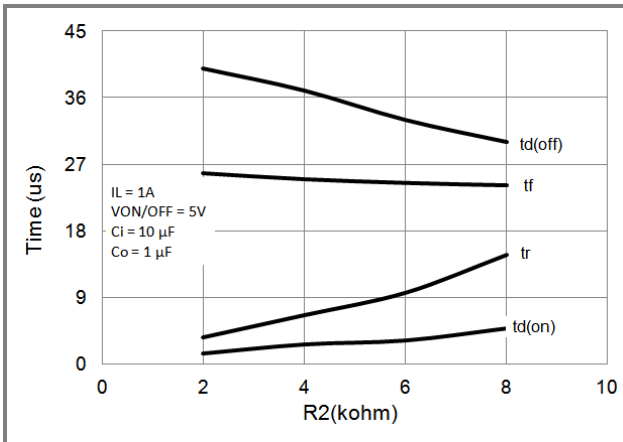


Fig.9 Switching Variation R2 at Vin=3.3V, R1=20k Ω

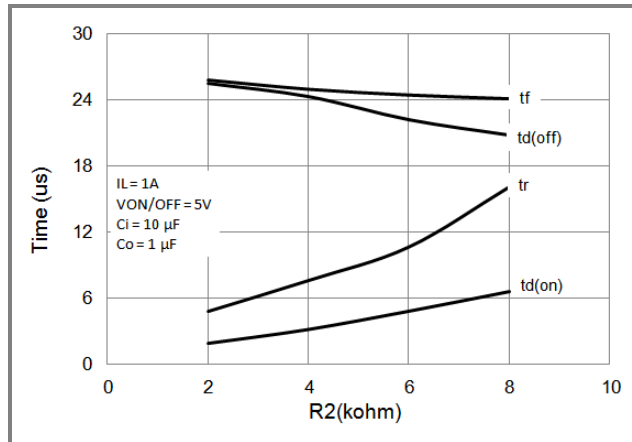


Fig.10 Switching Variation R2 at Vin=2.5V, R1=20k Ω

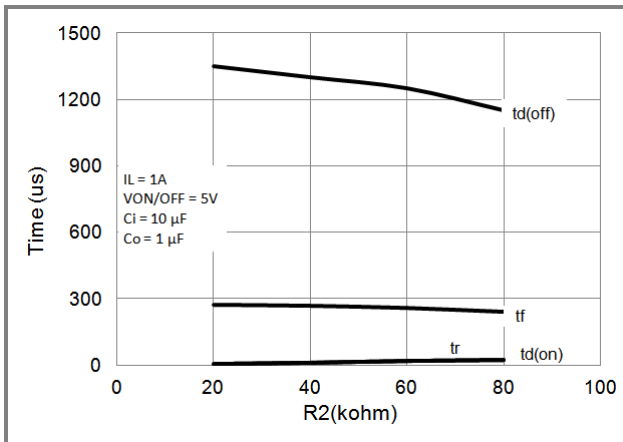


Fig.11 Switching Variation R2 at Vin=12V, R1=300k

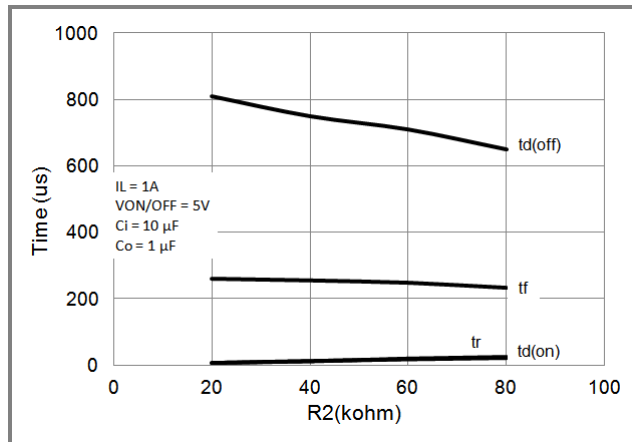


Fig.12 Switching Variation R2 at Vin=5V, R1=300k



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TYPICAL CHARACTERISTIC CURVES

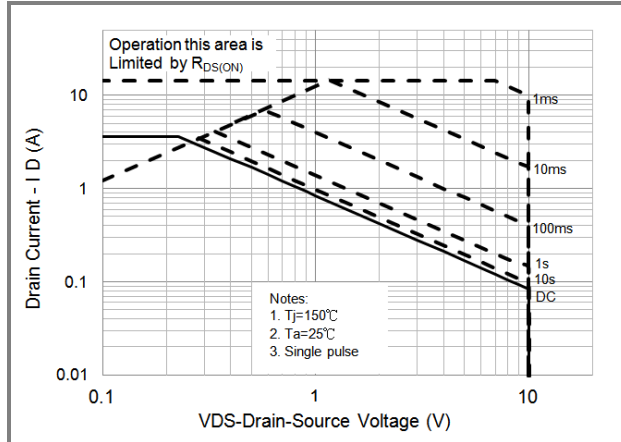


Fig.13 Switching Variation R2 at $V_{in} = 12\text{V}$, $R_1 = 20\text{k}\Omega$

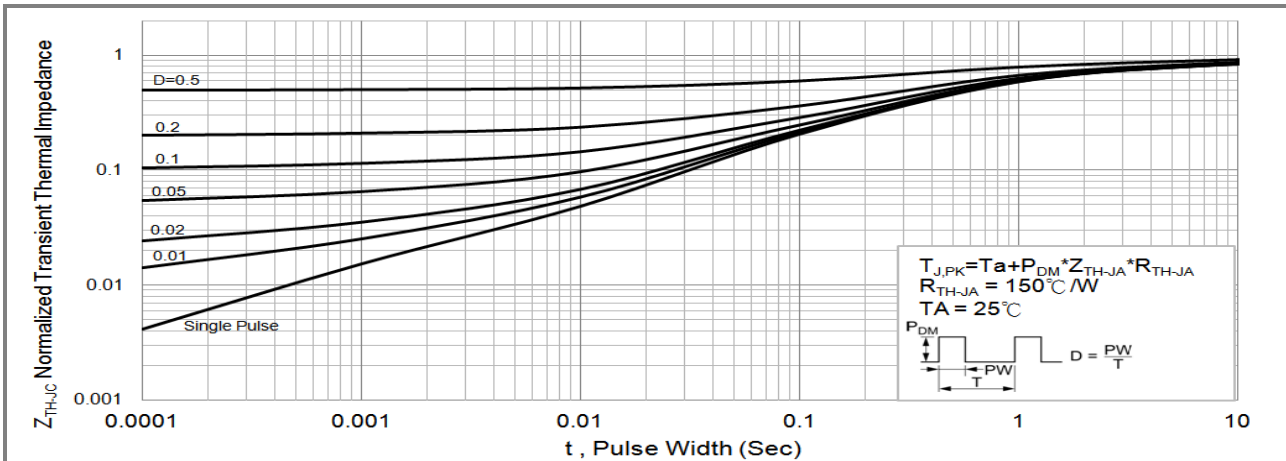


Fig.14 Transient Thermal Response Curve

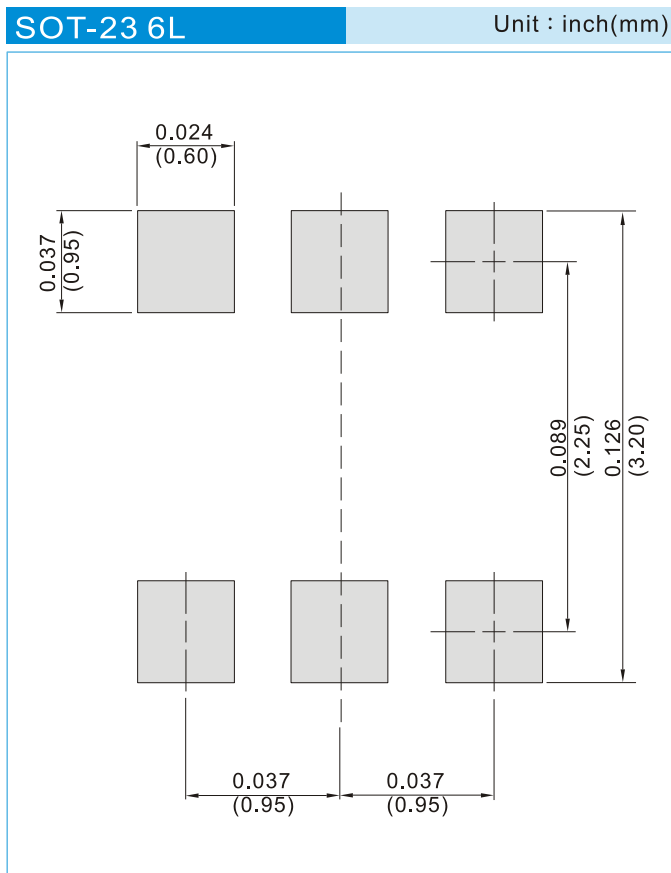


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PART NO. PACKING CODE VERSION

Part No. Packing Code	Package Type	Packing Type	Marking	Version
PJS6630_S1_00001	SOT-23 6L	3K pcs / 7" reel	SL0	Halogen free RoHS compliant
PJS6630_S2_00001	SOT-23 6L	10K pcs / 13" reel	SL0	Halogen free RoHS compliant

MOUNTING PAD LAYOUT





PJS6630

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