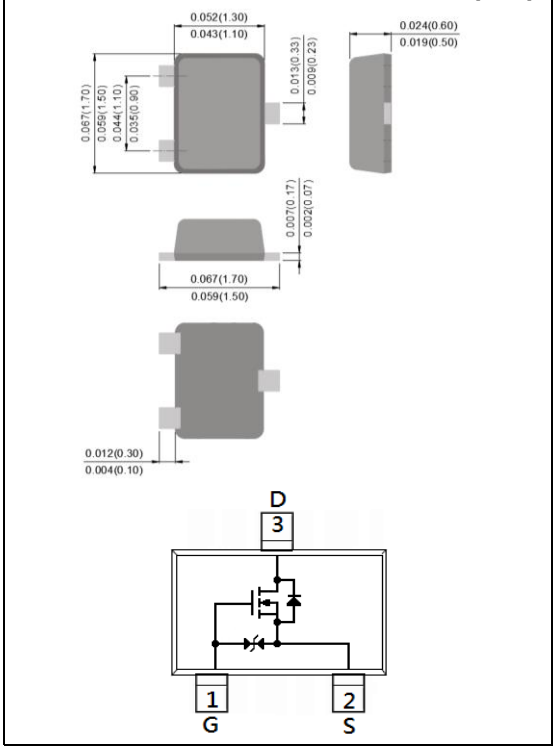
PJE8412

30V N-Channel Enhancement Mode MOSFET – ESD Protected

Voltage	30 V	Current	350mA

SOT-523 Unit : inch(mm)



Features

- $R_{DS(ON)}$, V_{GS}@4.5V, I_D@350mA<1.2Ω
- $R_{DS(ON)}$, V_{GS}@2.5V, I_D@200mA<1.6Ω
- $R_{DS(ON)}$, V_{GS}@1.8V, I_D@80mA<2.3Ω
- $R_{DS(ON)}$, V_{GS}@1.5V, I_D@10mA<2.5Ω(typ.)
- Specially Designed for Switch Load, PWM Application, etc.
- ESD Protected 2KV HBM
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

Mechanical Data

- Case : SOT-523 Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight : 0.002 grams
- Marking : E12

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

PARAMETER		SYMBOL	LIMIT	UNITS
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±10	V
Continuous Drain Current		I_D	350	mA
Pulsed Drain Current		I_{DM}	1400	mA
Power Dissipation	T_a=25°C	P_D	300	mW
	Derate above 25°C		2.4	mW/°C
Operating Junction and Storage Temperature Range		T_J,T_{STG}	-55~150	°C
Typical Thermal Resistance - Junction to Ambient(Note 3)		$R_{\theta JA}$	417	°C/W

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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	30	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250uA	0.6	0.85	1.1	V
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS}=4.5V, I_D=350mA	-	0.94	1.2	Ω
		V_{GS}=2.5V, I_D=200mA	-	1.32	1.6	
		V_{GS}=1.8V, I_D=80mA	-	1.82	2.3	
		V_{GS}=1.5V, I_D=10mA	-	2.5	-	
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V, V_{GS}=0V	-	0.01	1	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±8V, V_{DS}=0V	-	-	±10	
		V_{GS}=±5V, V_{DS}=0V	-	-	±1	
Dynamic(Note 5)						
Total Gate Charge	Q_g	V_{DS}=15V, I_D=350mA, V_{GS}=4.5V(Note 1,2)	-	0.87	-	nC
Gate-Source Charge	Q_{gs}		-	0.26	-	
Gate-Drain Charge	Q_{gd}		-	0.16	-	
Input Capacitance	Ciss	V_{DS}=15V, V_{GS}=0V, f=1.0MHZ	-	34	-	pF
Output Capacitance	Coss		-	8.9	-	
Reverse Transfer Capacitance	Crss		-	2.5	-	
Turn-On Delay Time	$td_{(on)}$	V_{DD}=15V, I_D=80mA, V_{GS}=4.0V, R_G=6Ω(Note 1,2)	-	7.1	-	ns
Turn-On Rise Time	tr		-	20	-	
Turn-Off Delay Time	$td_{(off)}$		-	41	-	
Turn-Off Fall Time	tf		-	31	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I_S	---	-	-	350	mA
Diode Forward Voltage	V_{SD}	I_S=350mA, V_{GS}=0V	-	0.88	1.3	V

NOTES :

1. Pulse width≤300us, Duty cycle≤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.

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TYPICAL CHARACTERISTIC CURVES

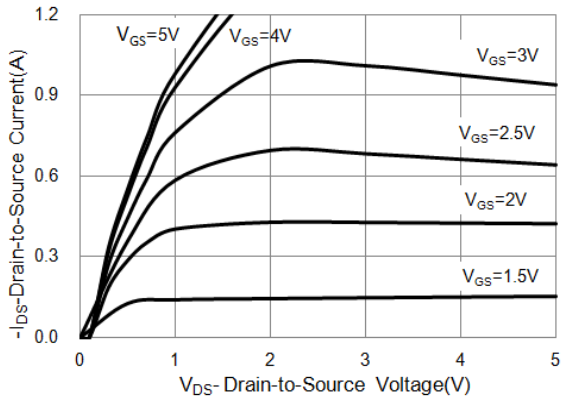


Fig.1 On-Region Characteristics

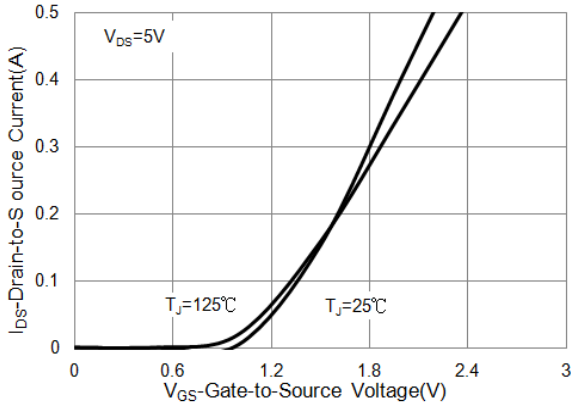


Fig.2 Transfer Characteristics

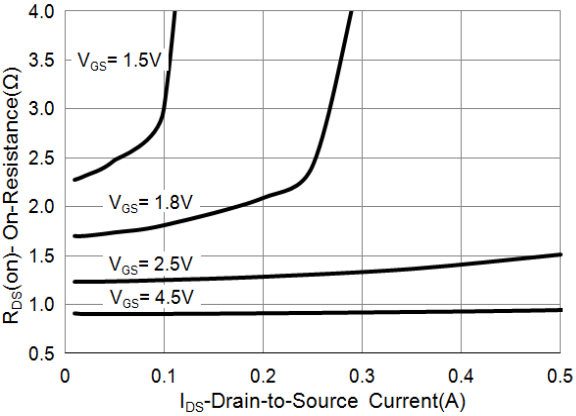


Fig.3 On-Resistance vs. Drain Current

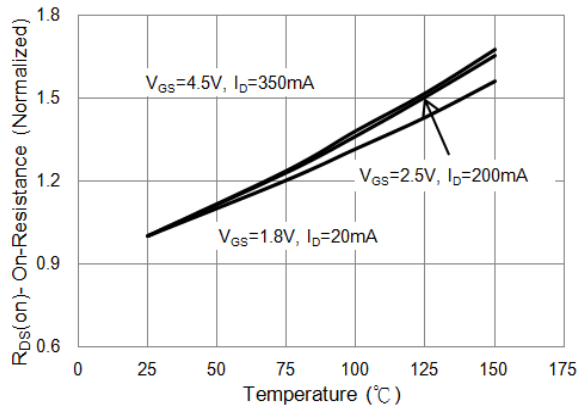


Fig.4 On-Resistance vs. Junction temperature

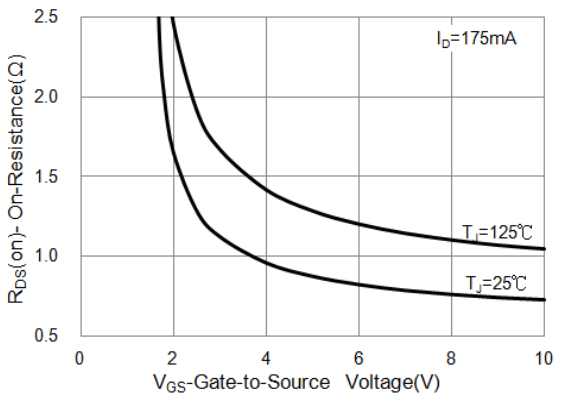


Fig.5 On-Resistance Variation with VGS.

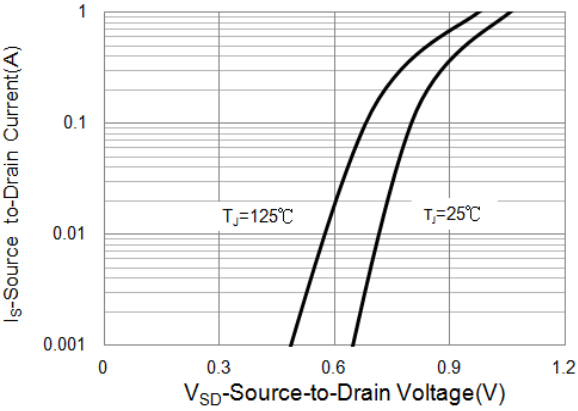


Fig.6 Body Diode Characteristics

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TYPICAL CHARACTERISTIC CURVES

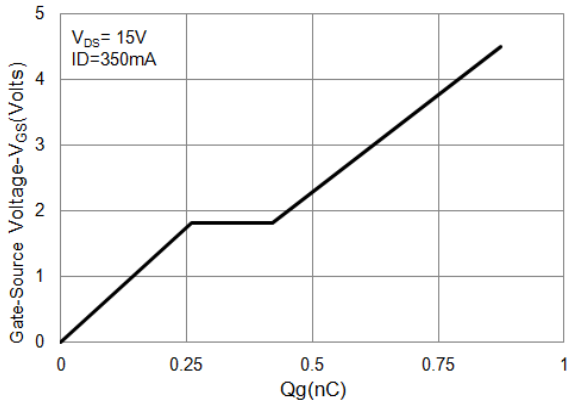


Fig.7 Gate-Charge Characteristics

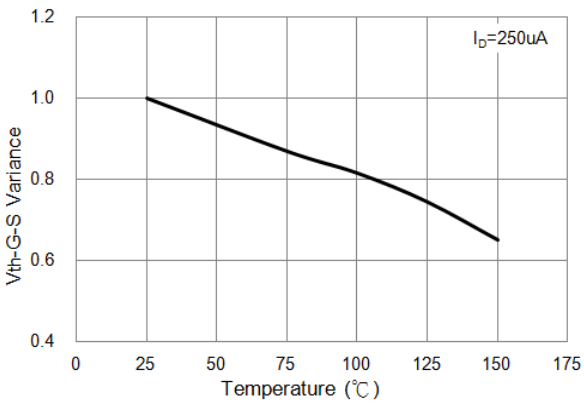


Fig.8 Threshold Voltage Variation with Temperature.

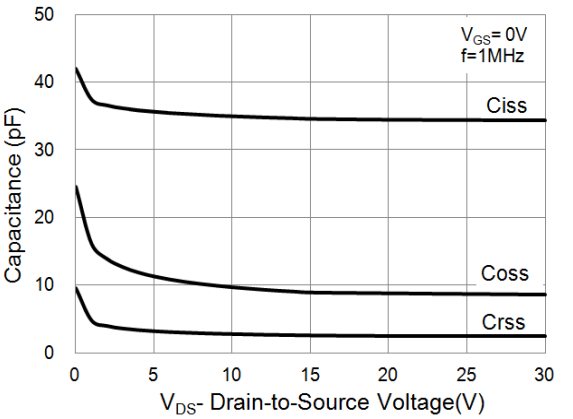


Fig.9 Capacitance vs. Drain-Source Voltage.

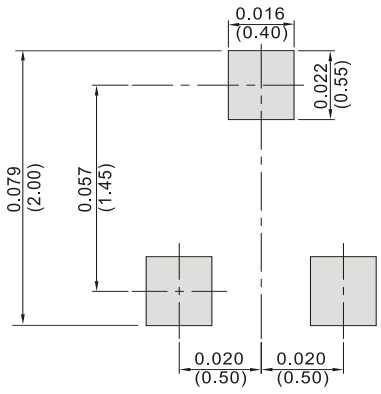
PJE8412

PART NO. PACKING CODE VERSION

Part No. Packing Code	Package Type	Packing Type	Marking	Version
PJE8412_R1_00001	SOT-523	4K pcs / 7” reel	E12	Halogen free RoHS compliant

MOUNTING PAD LAYOUT

SOT-523 Pad Layout — Unit: inch(mm)



PJE8412

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