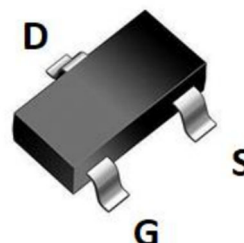


Features

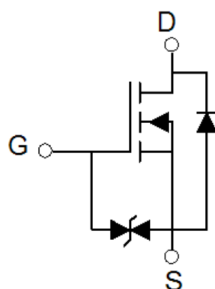
- * $V_{DS} = 30V$, $I_D = 0.3A$
- * $R_{DS(ON)} = \text{Typ } 1.8\Omega @ V_{GS} = 4.5V$
- * $R_{DS(ON)} = \text{Typ } 2.3\Omega @ V_{GS} = 2.5V$
- * ESD protected
- * SOT-23 package

Package



SOT-23

Circuit diagram



Ordering Information

Part Number	Packaging	Reel Size
PJA3428_R1_00001-CN	3000/Tape & Reel	7 inch

Absolute maximum ratings ($T_A=25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Value	Unit
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Continuous Drain Current ($T_A = 25^\circ\text{C}$)	0.3	A
I_D	Continuous Drain Current ($T_A = 100^\circ\text{C}$)	0.2	A
I_{DM}	Pulsed Drain Current ^{note1}	0.9	A
P_D	Power Dissipation ($T_A = 25^\circ\text{C}$)	0.3	W
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	416.5	$^\circ\text{C}/\text{W}$
T_J	Maximum Junction Temperature	$-40 \sim +150$	$^\circ\text{C}$
T_{STG}	Storage Temperature	$-55 \sim +150$	$^\circ\text{C}$

Electrical characteristics (T_A=25°C unless otherwise specified)

Symbol	Parameter	Test conditions	Min	Typ	Max	Unit
Off characteristics						
V _{(BR)DS}	Drain-source breakdown voltage	V _{GS} = 0V, I _D = 250μA	30			V
I _{DS}	Zero gate voltage drain current	V _{DS} = 30V, V _{GS} = 0V			1.0	μA
I _{GS}	Gate to body leakage current	V _{DS} = 0V, V _{GS} = ±20V			±10	μA
On characteristics						
V _{GS(th)}	Gate threshold voltage	V _{DS} = V _{GS} , I _D = 250μA	0.5	0.85	1.2	V
R _{DS(on)}	Static drain-source on resistance ^{Note2}	V _{GS} = 4.5V, I _D = 0.3A		1.8	2.5	Ω
		V _{GS} = 2.5V, I _D = 0.2A		2.3	4.5	Ω
Dynamic characteristics						
C _{iss}	Input capacitance	V _{DS} = 25V		22		pF
C _{oss}	Output capacitance	V _{GS} = 0V		3		pF
C _{rss}	Reverse transfer capacitance	f=1MHz		2		pF
Q _g	Total gate charge	V _{DS} = 10V		1.8		nC
Q _{gs}	Gate-source charge	I _D = 0.3A		0.4		nC
Q _{gd}	Gate-drain charge	V _{GS} = 0 to 4.5V		0.7		nC
Switching characteristics						
td(on)	Turn-on delay time	V _{DD} = 10V		2		ns
tr	Turn-on rise time	I _D = 0.2A		16		ns
td(off)	Turn-off delay time	R _{GEN} = 10Ω		7		ns
tf	Turn-off fall time	V _{GS} = 10V		19		ns
Drain-source diode characteristics and maximum ratings						
V _{SD}	Drain to source diode forward voltage	V _{GS} = 0V, I _S = 0.3A			1.2	V
I _S	Maximum continuous drain to source diode forward current				0.3	A
I _{SM}	Maximum Pulsed drain to source diode forward current				0.9	A

Notes:1. Repetitive rating: pulse width limited by maximum junction temperature

2. Pulse test: pulse width ≤ 300μs, duty cycle ≤ 0.5%

Test Circuit

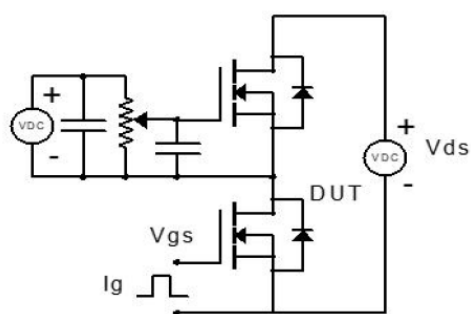


Figure 1 Gate Charge Test Circuit & Waveform

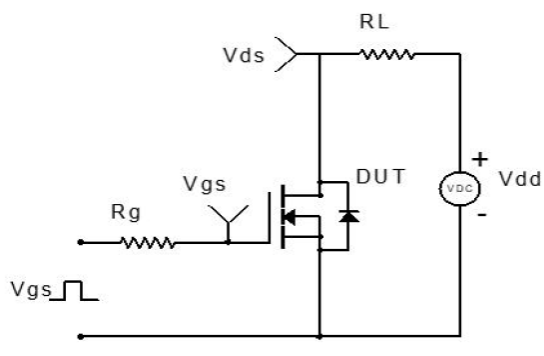


Figure 2 Resistive Switching Test Circuit & Waveform

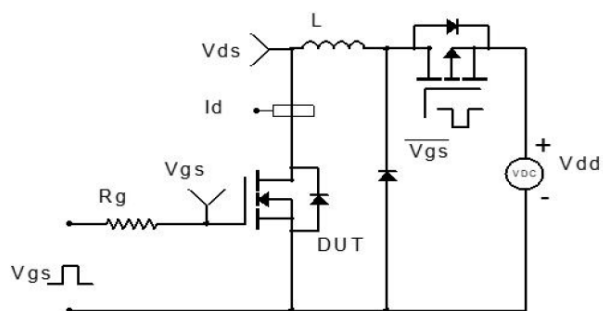


Figure 3 Unclamped Inductive Switching Test Circuit & Waveform

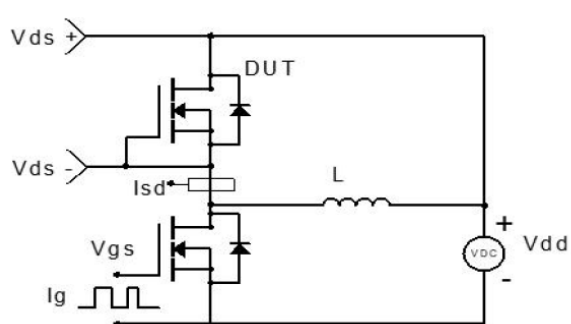
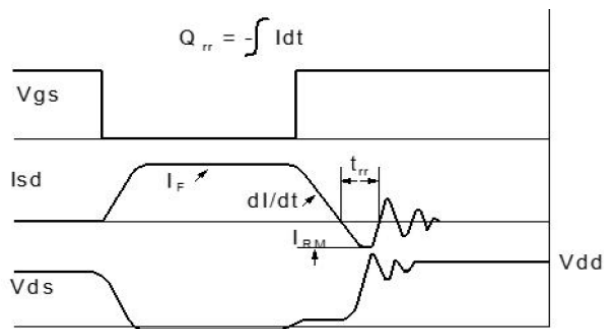
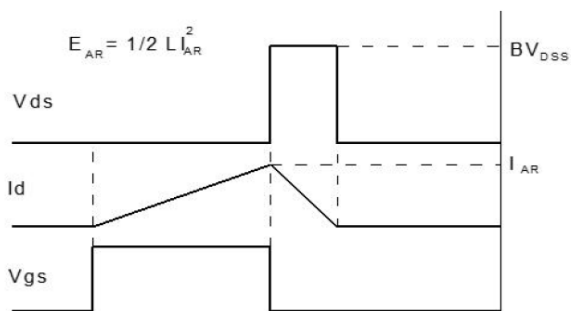
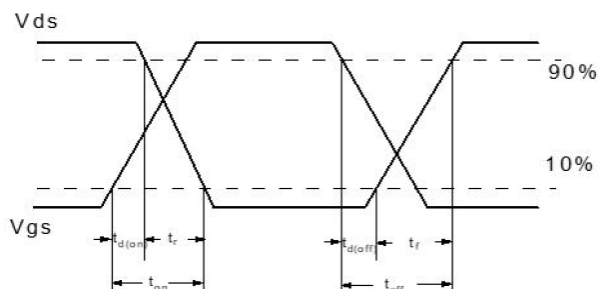
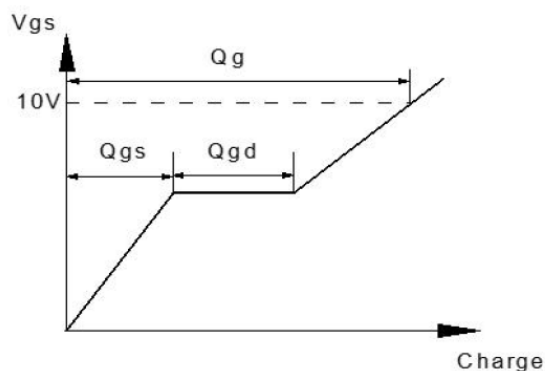
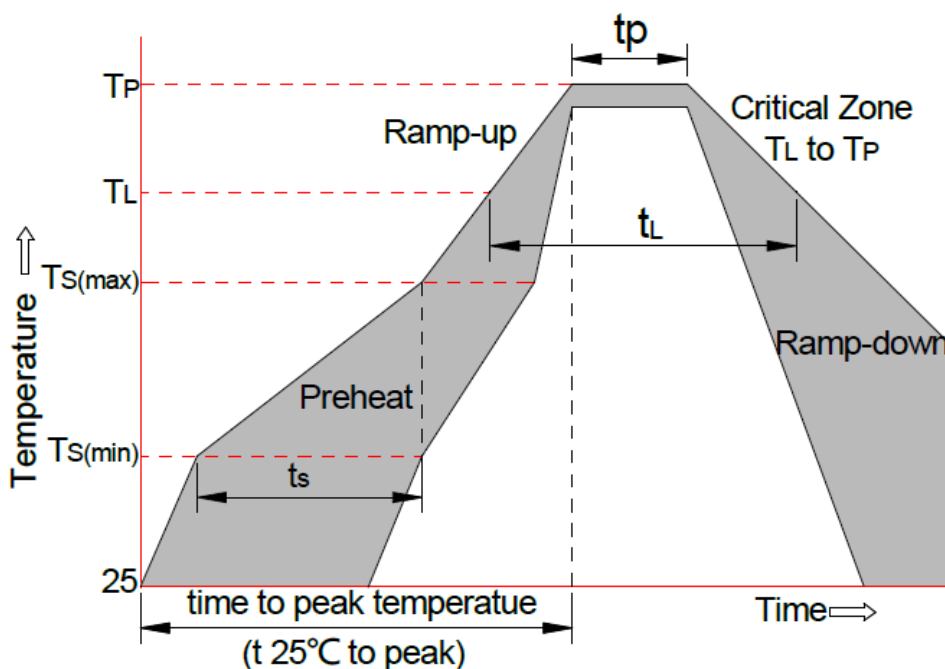


Figure 4 Diode Recovery Test Circuit & Waveform

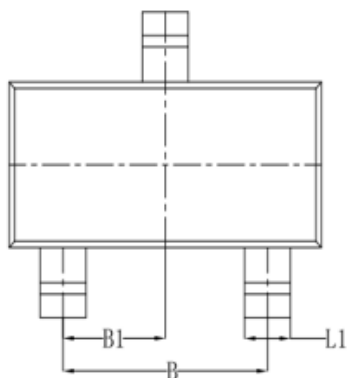


Soldering Parameters



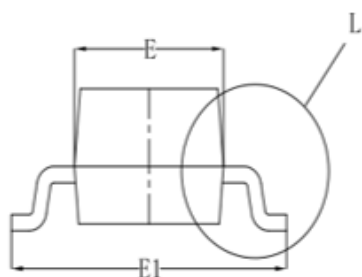
Reflow Conditions		Pb-Free Assembly
Pre-heat	-Temperature Min (Ts (min))	+150°C
	-Temperature Max (Ts (max))	+200°C
	-Time (Min to Max) (ts)	60-180 secs
Average ramp up rate(Liquid us Temp (TL) to peak)		3°C/sec. Max
TS (max) to TL-Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature (TL) (Liquid us)	+217°C
	-Temperature (tL)	60-150 secs
Peak Temp (Tp)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (tp)		30 secs. Max
Ramp-down Rate		6 °C/sec. Max
Time 25°C to Peak Temp (TP)		8 min. Max
Do not exceed		+260°C

SOT-23 Package Outline Drawing

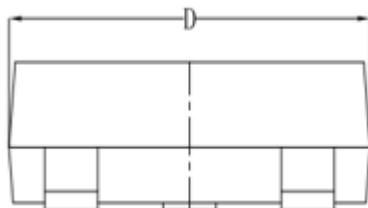


TOP VIEW

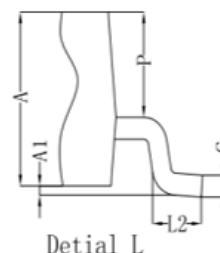
SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	Min	Typ	Max	Min	Typ	Max
A	0.900	1.000	1.100	0.0354	0.0394	0.0433
A1	0.000	0.050	0.100	0.0000	0.0020	0.0039
B	1.900 TYP			0.0748 TYP		
B1	0.950 TYP			0.0374 TYP		
C	0.100	0.110	0.120	0.0039	0.0043	0.0047
D	2.800	2.900	3.000	0.1102	0.1142	0.1181
E	1.250	1.300	1.350	0.0492	0.0512	0.0531
E1	2.250	2.400	2.550	0.0886	0.0945	0.1004
L1	0.350	0.400	0.500	0.0138	0.0157	0.0197
L2	0.200	0.350	0.450	0.0079	0.0138	0.0177
P	0.550	0.575	0.600	0.0217	0.0226	0.0236



SIDE VIEW

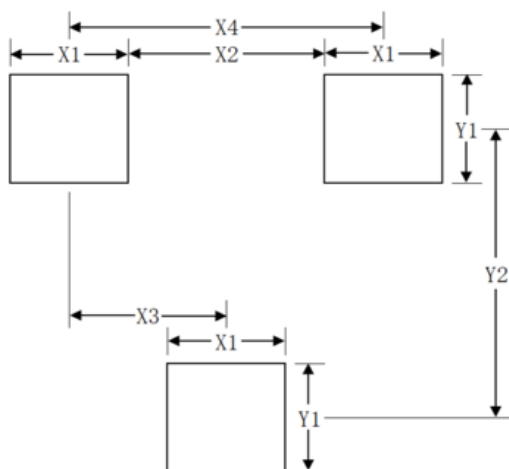


SIDE VIEW



SIDE VIEW

Suggested Pad Layout



SYM	DIMENSIONS	
	MILLIMETER	INCHES
X1	0.800	0.031
X2	1.100	0.043
X3	0.950	0.037
X4	1.900	0.075
Y1	0.800	0.031
Y2	2.200	0.087

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