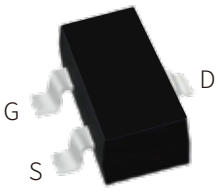
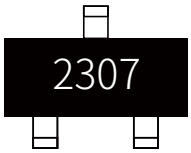
FEATURES

- Standard Turbo MOSFET process technology
- Optimized the cell structure
- Low on-resistance and low gate charge
- Featuring low switching and drive losses
- Fast switching and reverse body recovery
- High ruggedness and robustness



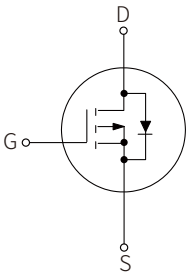
SOT-23-3L



Marking

APPROVALS

RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003



Schematic Symbol

ABSOLUTE MAXIMUM RATINGS(T_a=25°C)

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DSS}	-20	V
Drain Current-Continuous	T_C=25°C	I_D	-5	A
	T_C=100°C		-3.5	A
Drain Current-Pulsed		I_{DM}	-20	A
Gate-Source Voltage		V_{GSS}	±10	V
Maximum Power Dissipation	T_C=25°C	P_D	1.6	W
	T_C=100°C		1.0	W
Junction and Storage Temperature		T_J,T_{STG}	-55 to 150	°C
Thermal Resistance, Junction-to-Case		$R_{\theta JC}$	78	°C/W
Thermal Resistance, Junction-to-Ambient		$R_{\theta JA}$	100	°C/W

ELECTRICAL CHARACTERISTICS(T_a=25°C)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
On/Off Characteristics						
Drain-source Breakdown Voltage	BV_{DSS}	V_{GS}=0V,I_D=-250μA	-20			V
Drain Leakage Current	I_{DSS}	V_{DS}=-20V,V_{GS}=0V			-1	μA
Gate Leakage Current	I_{GSS}	V_{GS}=±10V,V_{DS}=0V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_{DS}=-250μA	-0.5		-1.2	V
On-State Resistance	$R_{DS(on)}$	V_{GS}=-4.5V,I_{DS}=-1A		14.5	16	mΩ
		V_{GS}=-2.5V,I_{DS}=-1A		18.3	20	
		V_{GS}=-1.8V,I_{DS}=-1A		24.5	28	
Drain-Source Diode Characteristics and Maximum Ratings						
Diode Forward Voltage	V_{SD}	V_{GS}=0V,I_{SD}=-0.5A		-0.7	-1.3	V
Reverse Recovery Time	t_{rr}	V_{GS}=0V,I_{SD} =-10A, dI_{SD}/dt = 100 A/μs		12		ns
Reverse Recovery Charge	Q_{rr}			5		nC
Dynamic and Switching Characteristics						
Input Capacitance	C_{iss}	V_{DS}=-10V,V_{GS}=0V,F=1MHz		1930		pF
Output Capacitance	C_{oss}			243		
Reverse Transfer Capacitance	C_{rss}			234		
Turn–On Delay Time	$t_{d(on)}$	V_{DS}=-10V,R_L=1Ω V_{GS}=-4.5V,R_G=3.3Ω		8		ns
Turn–On Rise Time	t_r			40		
Turn–Off Delay Time	$t_{d(off)}$			94		
Turn–Off Fall Time	t_f			70		
Gate Resistance	R_g	F=1MHz		4.4		Ω
Total Gate Charge	Q_g	V_{GS}=-4.5V,V_{DS}=-10V,I_D=-10A		24		nC
Gate Source Charge	Q_{gs}			5.4		
Gate Drain Charge	Q_{gd}			6		

PARAMETER CHARACTERISTIC CURVE

Figure 1:Typical Output Characteristics

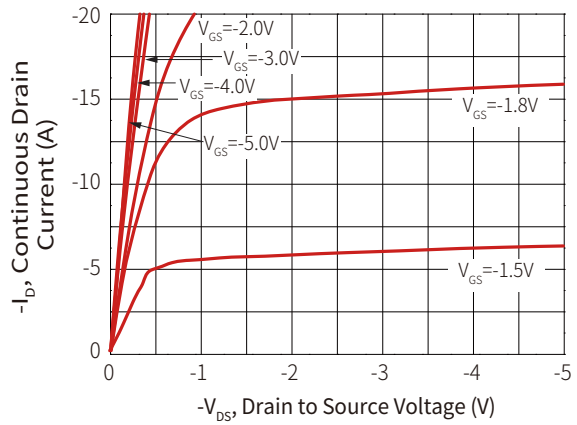


Figure 2:Transfer Characteristics

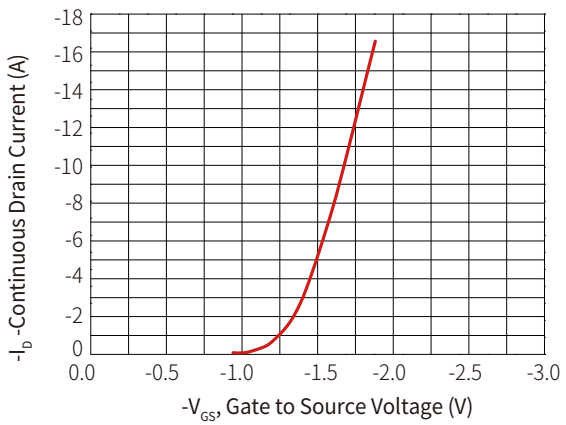


Figure 3:R_{DSON} vs. ID and Gate Voltage

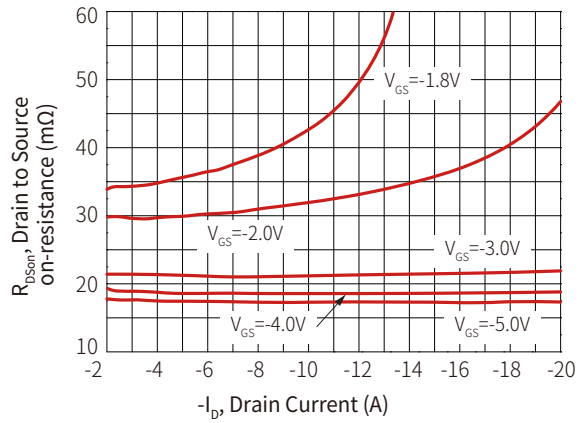


Figure 4:Body-Diode Characteristics

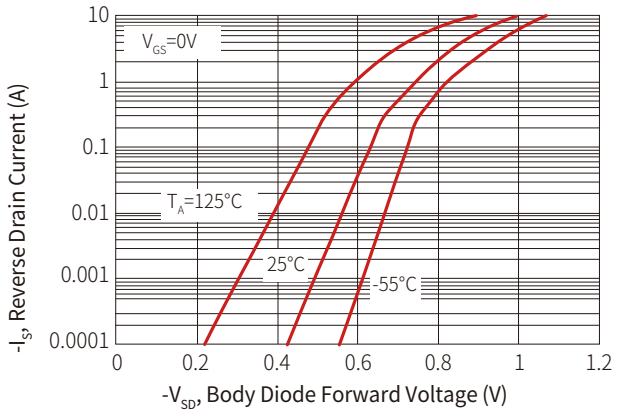


Figure 5: Gate Charge Characteristics

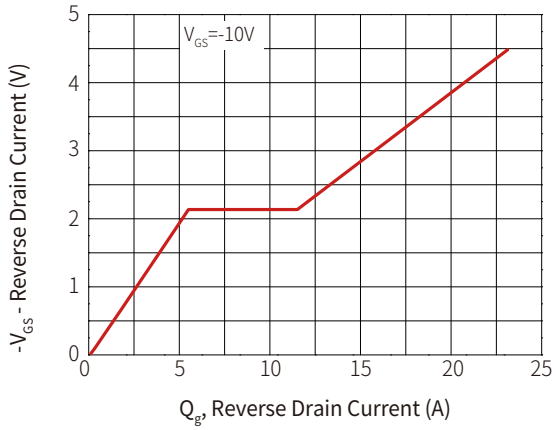
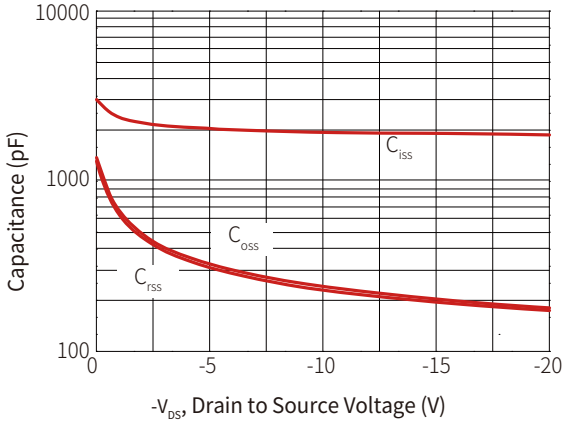
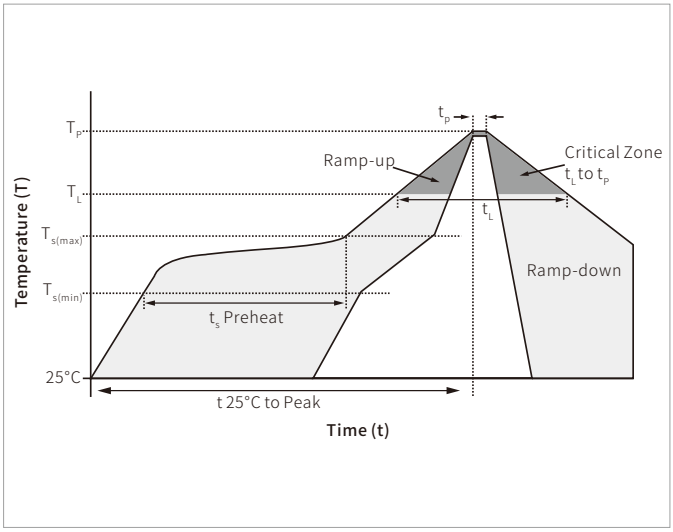


Figure 6:Capacitance Characteristics

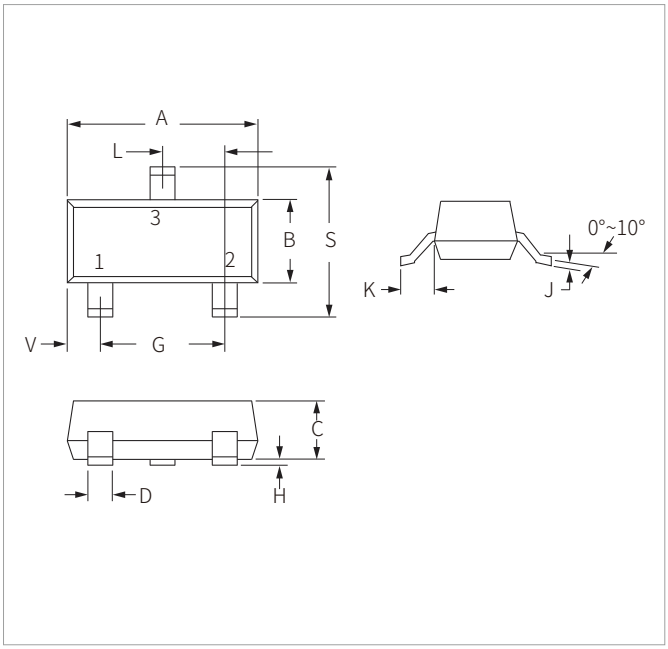


SOLDERING PARAMETERS

Reflow Condition		Lead–free assembly
Pre Heat	Temperature Max ($T_{s(min)}$)	150°C
	Temperature Max ($T_{s(max)}$)	200°C
	Time (min to max) (t_s)	60 – 180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak		3°C/second max
$T_{S(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	Temperature (T_L) (Liquidus)	217°C
	Time (min to max) (t_L)	60 – 150 seconds
Peak Temperature (T_P)		260°C
Time within 5°C of actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes max.
Do not exceed		260°C

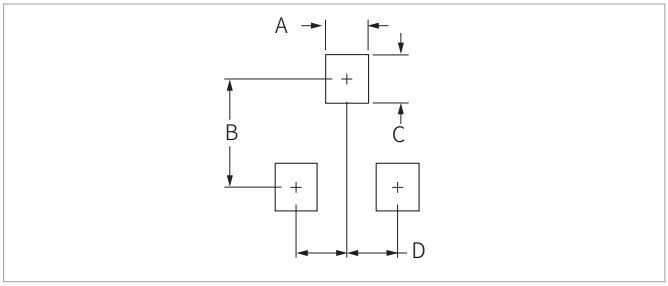


SOT-23-3L PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.80	3.15	0.110	0.124
B	1.50	1.70	0.060	0.070
C	1.00	1.30	0.039	0.051
D	0.37	0.50	0.015	0.020
G	1.78	2.10	0.070	0.083
H	0.01	0.15	0.001	0.006
J	0.08	0.18	0.003	0.007
K	0.35	0.69	0.014	0.029
L	0.89	1.02	0.035	0.040
S	2.60	3.00	0.102	0.118
V	0.45	0.60	0.018	0.024

RECOMMENDED PAD LAYOUT DIMENSIONS



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.70	1.00	0.028	0.039
B	2.30	2.50	0.090	0.098
C	0.70	1.00	0.028	0.039
D	0.80	1.10	0.032	0.043

ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
SPM2307	SOT-23-3L	3000PCS	7”

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