

Features

- High density cell design for low $R_{DS(ON)}$
- Voltage controlled small signal switch
- Rugged and reliable
- High saturation current capability

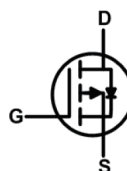
V_{DS} -20 V
 I_D -7 A
 $R_{DS(ON)}$ 15 m Ω

G17

SOT23-3L top view



Equivalent Circuit



Maximum ratings ($T_a=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 12	
Continuous Drain Current	I_D	-7	A
Pulsed Drain Current	I_{DM}	-18	
Continuous Source-Drain Diode Current	I_S	-0.72	
Maximum Power Dissipation	P_D	1.20	W
Thermal Resistance from Junction to Ambient($t \leq 5s$)	$R_{\theta JA}$	62.5	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 ~ +150	

Electrical Characteristics (T_J=25°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Static						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =-250μA	-20			V
Gate-source threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-0.4		-1.2	
Gate-source leakage	I _{GSS}	V _{DS} =0V, V _{GS} =±8V			±100	nA
Zero gate voltage drain current	I _{DSS}	V _{DS} =-20V, V _{GS} =0V			-1	μA
Drain-source on-state resistance ^a	R _{DS(on)}	V _{GS} =-4.5V, I _D =-7.0A		0.0155	0.019	Ω
		V _{GS} =-2.5V, I _D =-3.0A		0.019	0.024	
Forward transconductance ^a	g _{fs}	V _{DS} =-5V, I _D =-2.8A		6.5		S
Dynamic ^b						
Input capacitance	C _{iss}	V _{DS} =-10V,V _{GS} =0V,f =1MHz		2000		pF
Output capacitance	C _{oss}			800		
Reverse transfer capacitance	C _{rss}			55		
Total gate charge	Q _g	V _{DS} =-10V,V _{GS} =-4.5V,I _D =-3A		5.5	10	nC
		V _{DS} =-10V,V _{GS} =-2.5V,I _D =-3A		3.3	6	
Gate-source charge	Q _{gs}			0.7		
Gate-drain charge	Q _{gd}			1.3		
Gate resistance	R _g	f =1MHz		6.0		Ω
Turn-on delay time	t _{d(on)}	V _{DD} =-10V, R _L =10Ω, I _D =-1A, V _{GEN} =-4.5V,R _g =1Ω		11	20	ns
Rise time	t _r			35	60	
Turn-off delay time	t _{d(off)}			300	350	
Fall time	t _f			10	20	
Drain-source body diode characteristics						
Continuous source-drain diode current	I _S	T _C =25℃			-1.3	A
Pulse diode forward current ^a	I _{SM}				-10	
Body diode voltage	V _{SD}	I _S =-0.7A		-0.8	-1.2	V

Notes :

- a. Pulse Test : Pulse Width < 300μs, Duty Cycle ≤ 2%.
- b. Guaranteed by design, not subject to production testing.

RATING AND CHARACTERISTIC CURVES

Figure1: Output Characteristics

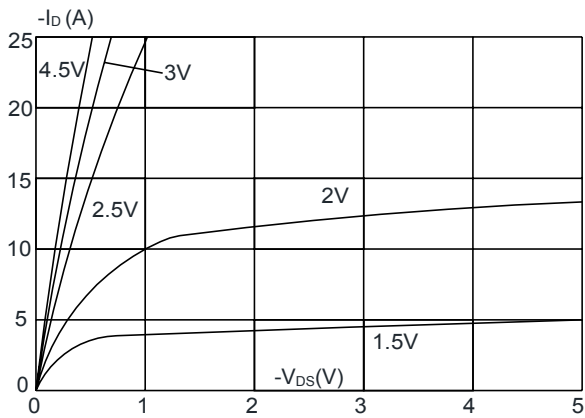


Figure 2: Typical Transfer Characteristics

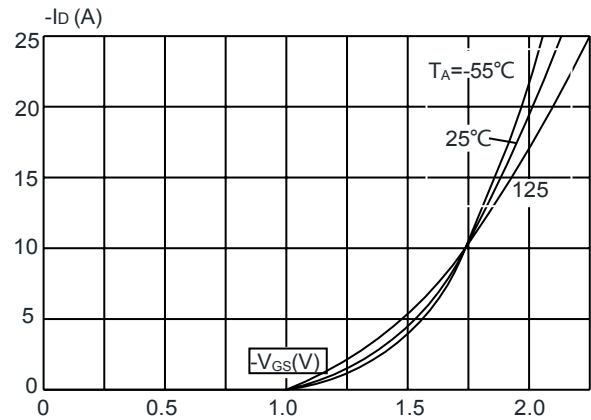


Figure 3: On-resistance vs. Drain Current

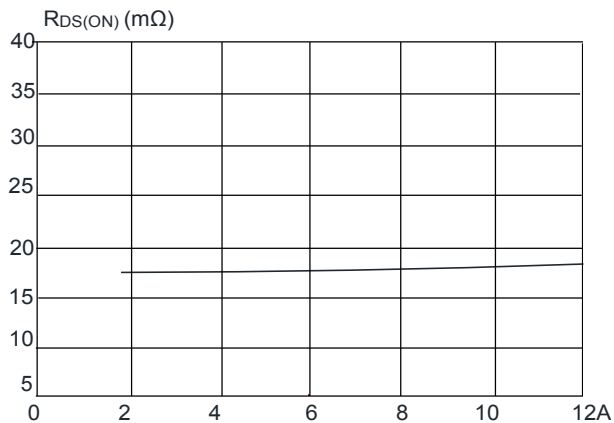


Figure 4: Body Diode Characteristics

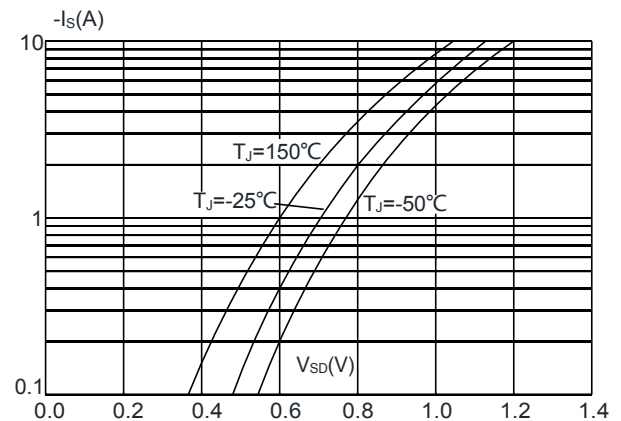


Figure 5: Gate Charge Characteristics

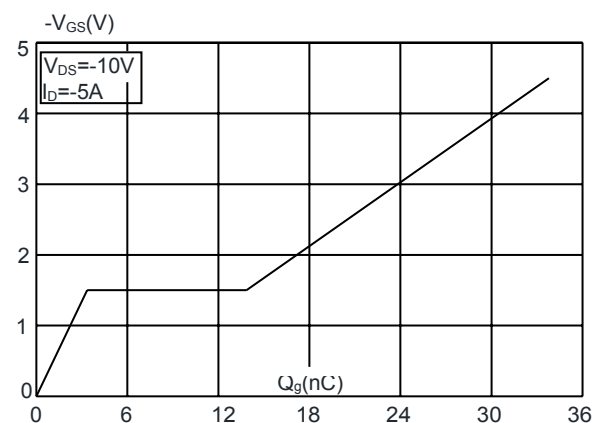
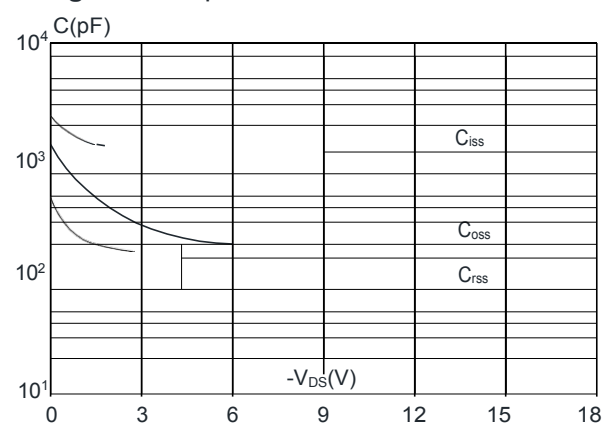


Figure 6: Capacitance Characteristics



RATING AND CHARACTERISTIC CURVES

Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

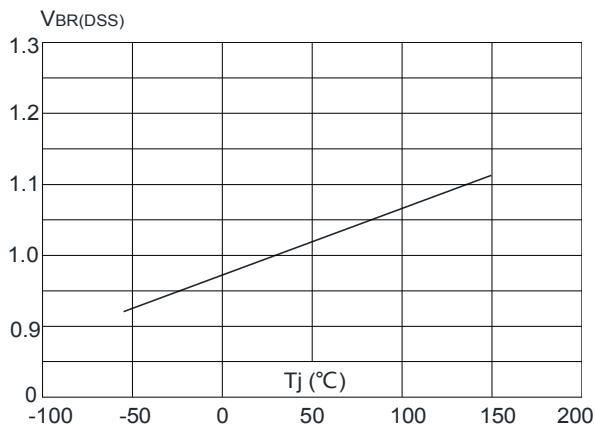


Figure 8: Normalized on Resistance vs. Junction Temperature

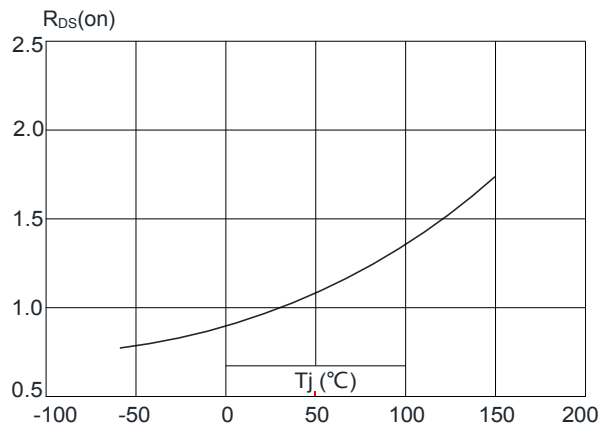


Figure 9: Maximum Safe Operating Area

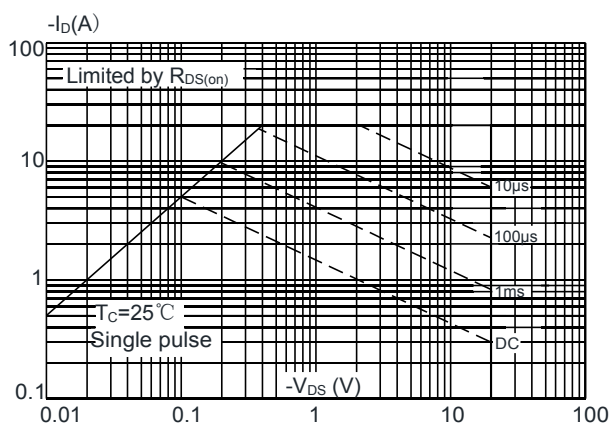


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

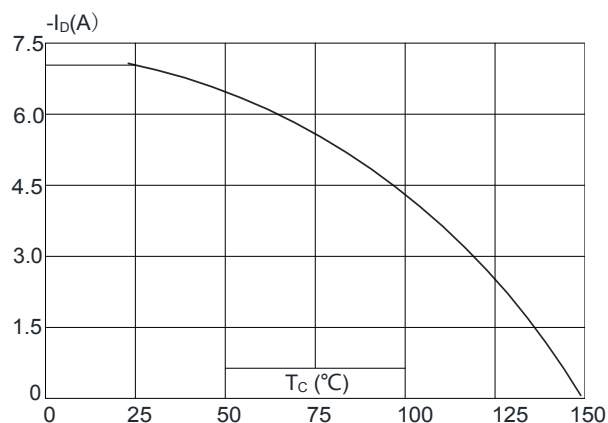
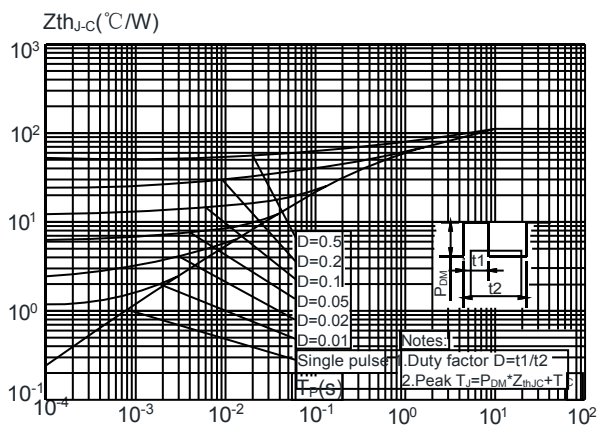
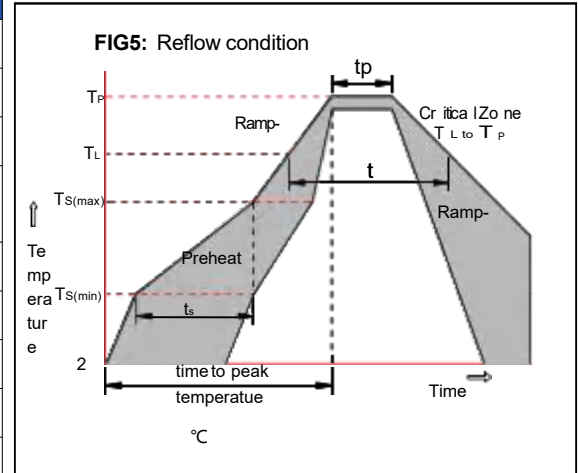


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case



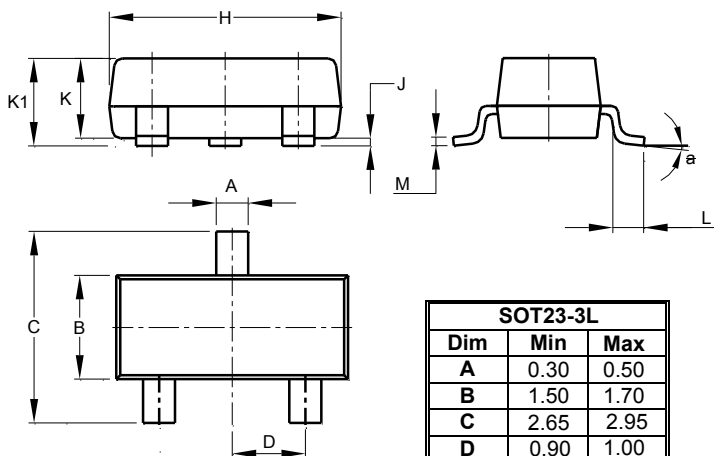
Soldering parameters

Reflow Condition		Pb-Free assembly (see as below)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150 °C
	-Temperature Max($T_{s(max)}$)	+200 °C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3 °C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3 °C/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217 °C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_P)		+260(+0/-5) °C
Time within 5 °C of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6 °C/sec. Max
Time 25 °C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260 °C

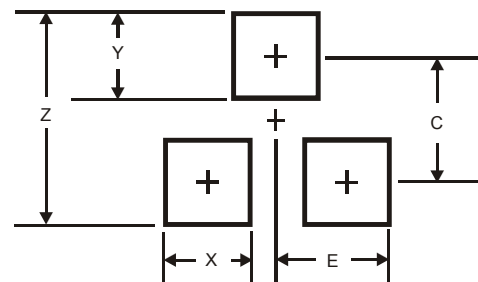


Package Dimensions & Suggested Pad Layout

SOT23-3L

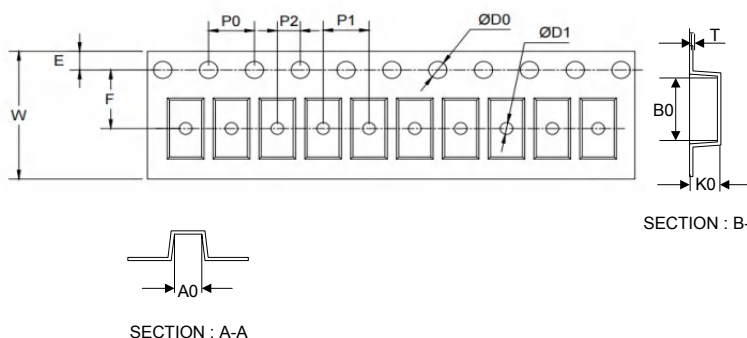
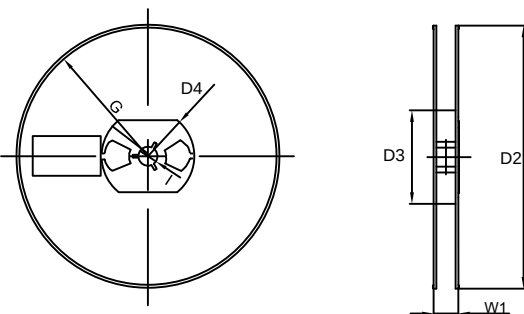


SOT23-3L		
Dim	Min	Max
A	0.30	0.50
B	1.50	1.70
C	2.65	2.95
D	0.90	1.00
H	2.82	3.02
J		0.10
K	1.05	1.15
K1	1.05	1.25
L	0.30	0.60
M	0.10	0.20
a	0°	8°
All Dimensions in mm		



Dimensions	SOT23-3L
Z	3.3
X	0.9
Y	1.0
C	2.3
E	1.40

Tape & reel specification

Tape 	<table> <tr> <th>Symbol</th><th>Dimension (mm)</th></tr> <tr><td>P0</td><td>4.00±0.20</td></tr> <tr><td>P1</td><td>4.00±0.20</td></tr> <tr><td>P2</td><td>2.00±0.20</td></tr> <tr><td>D0</td><td>1.55±0.20</td></tr> <tr><td>D1</td><td>1.05±0.20</td></tr> <tr><td>E</td><td>1.55±0.20</td></tr> <tr><td>F</td><td>3.60±0.20</td></tr> <tr><td>W</td><td>8.00±0.20</td></tr> <tr><td>A0</td><td>3.80±0.20</td></tr> <tr><td>B0</td><td>3.50±0.20</td></tr> <tr><td>K0</td><td>1.55±0.20</td></tr> <tr><td>T</td><td>0.25±0.15</td></tr> </table>	Symbol	Dimension (mm)	P0	4.00±0.20	P1	4.00±0.20	P2	2.00±0.20	D0	1.55±0.20	D1	1.05±0.20	E	1.55±0.20	F	3.60±0.20	W	8.00±0.20	A0	3.80±0.20	B0	3.50±0.20	K0	1.55±0.20	T	0.25±0.15
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7" Reel 	<table> <tr><td>D2</td><td>178.0±5.0</td></tr> <tr><td>D3</td><td>55Min.</td></tr> <tr><td>D4</td><td>R24.0±3.0</td></tr> <tr><td>G</td><td>R82.0±3.0</td></tr> <tr><td>I</td><td>13.0±2.0</td></tr> <tr><td>W1</td><td>11.0±3.0</td></tr> <tr><td colspan="2">Quantity: 3000PCS</td></tr> </table>	D2	178.0±5.0	D3	55Min.	D4	R24.0±3.0	G	R82.0±3.0	I	13.0±2.0	W1	11.0±3.0	Quantity: 3000PCS													
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