



Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
20V	18mΩ@4.5V	4.5A
	22mΩ@2.5V	
	28mΩ@1.8V	

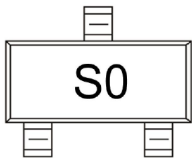
Feature

- Trench Technology Power MOSFET
- Low $R_{DS(on)}$
- Low Gate Charge
- ESD Protected

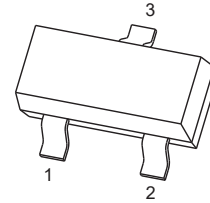
Application

- Load Switch
- DC/DC Converter

MARKING:

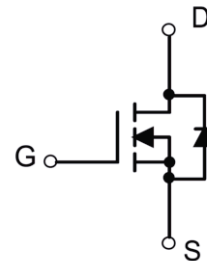


SOT-23



1. GATE
2. SOURCE
3. DRAIN

Schematic diagram



ABSOLUTE 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	V
Continuous Drain Current ^{1,5}	I_D	4.5	A
Pulsed Drain Current ²	I_{DM}	18	A
Power Dissipation ^{4,5}	P_D	1.4	W
Thermal Resistance from Junction to Ambient ⁵	$R_{\theta JA}$	89	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~ +150	$^\circ\text{C}$

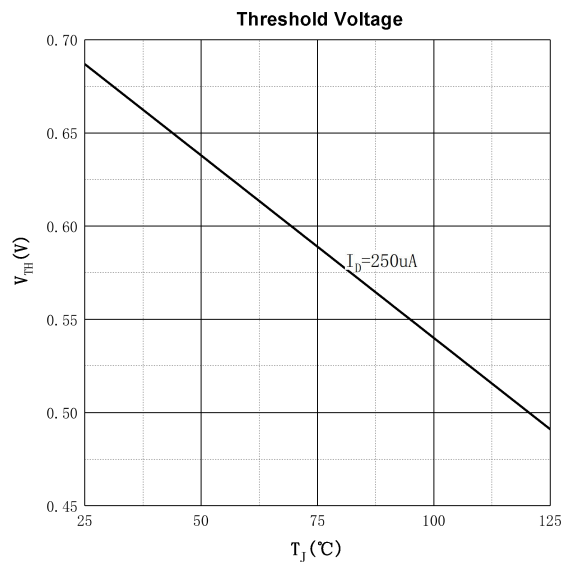
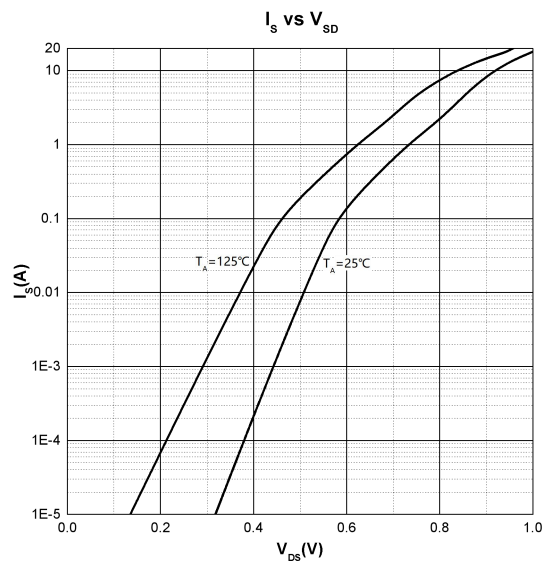
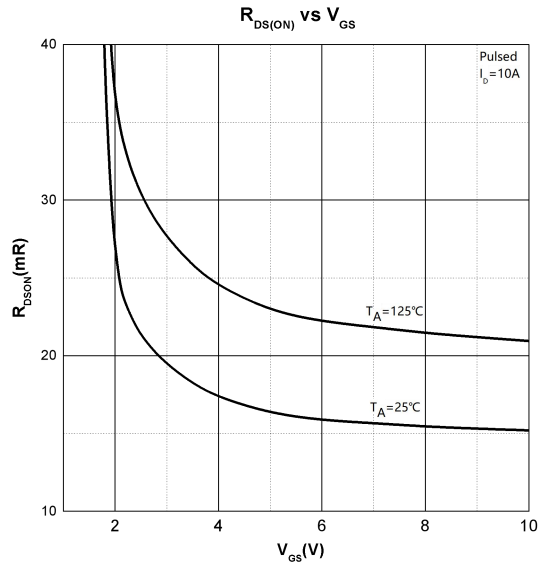
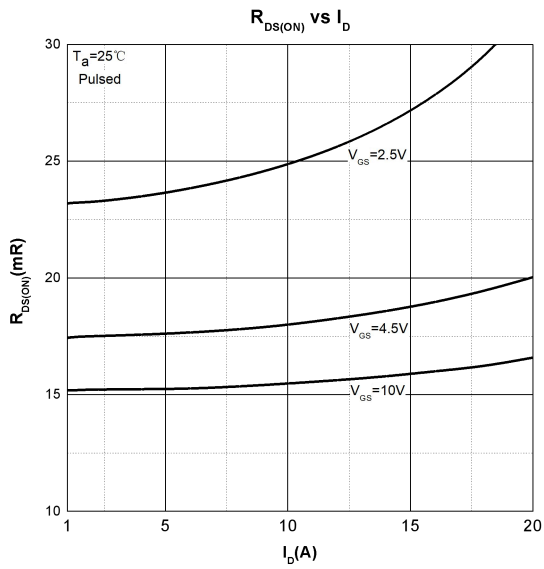
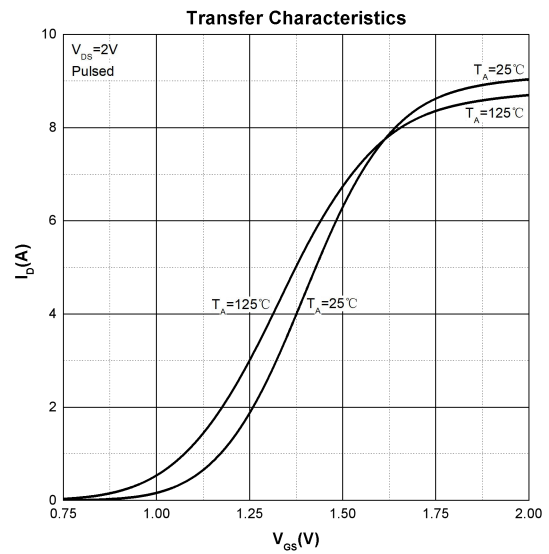
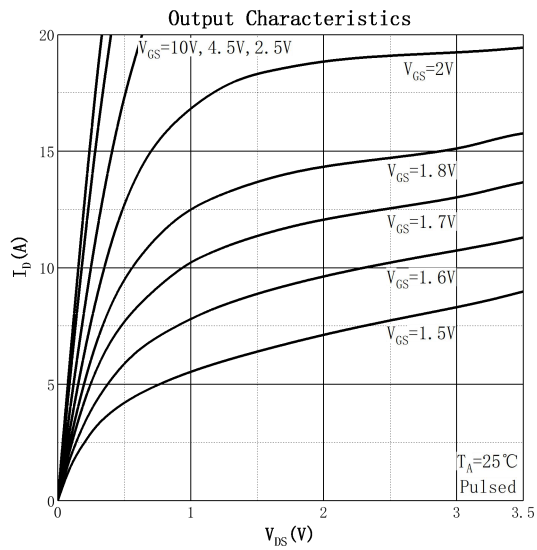
MOSFET ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$ unless otherwise noted)

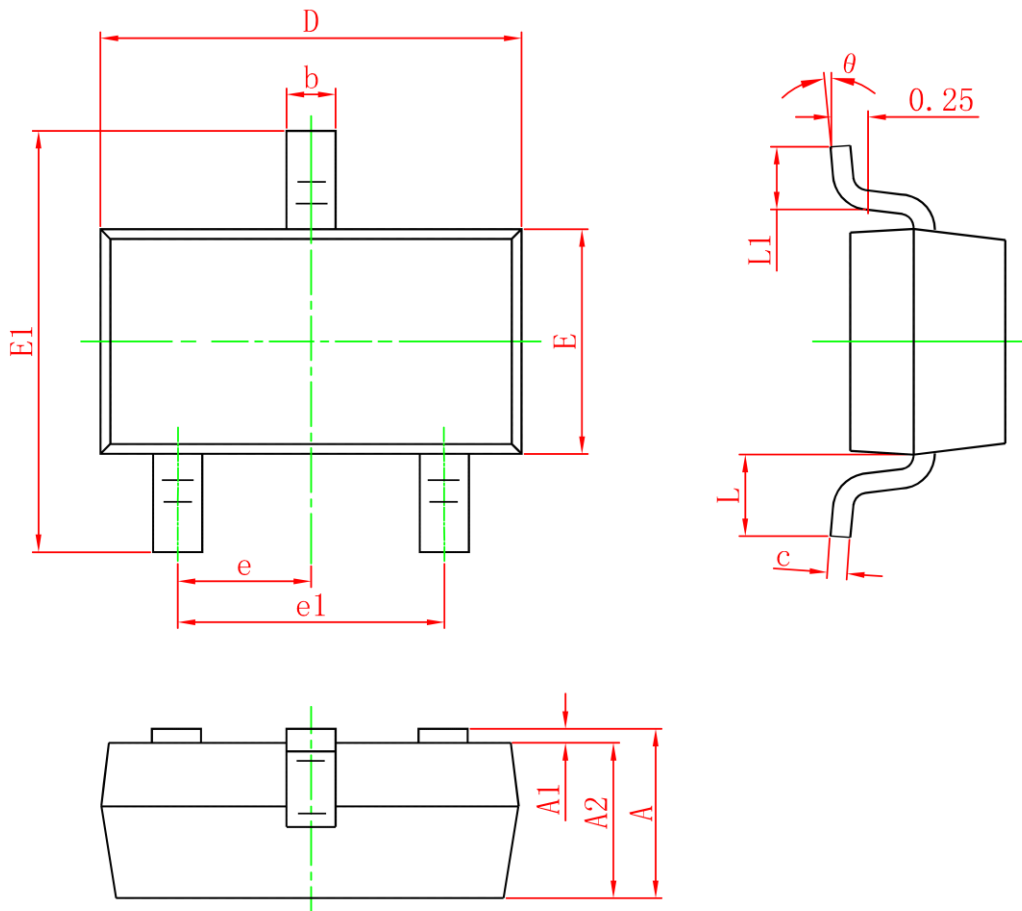
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain - Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	20			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 20V, V_{GS} = 0V$			1	μA
Gate - Body Leakage Current	I_{GSS}	$V_{GS} = \pm 12V, V_{DS} = 0V$			± 100	nA
On Characteristics³						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.4	0.7	1	V
Drain-source On-resistance	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 3A$		18	32	m Ω
		$V_{GS} = 2.5V, I_D = 2A$		22	40	
		$V_{GS} = 1.8V, I_D = 2A$		28	62	
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS} = 10V, f = 1MHz$		336		pF
Output Capacitance	C_{oss}			78.4		
Reverse Transfer Capacitance	C_{rss}			70		
Switching Characteristics						
Total Gate Charge	Q_g	$V_{DS} = 10V, V_{GS} = 4.5V, I_D = 6A$		6.4	8.2	nC
Gate-source Charge	Q_{gs}			1.8	2.3	
Gate-drain Charge	Q_{gd}			1.3	1.9	
Turn-on Delay Time	$t_{d(on)}$	$V_{DS} = 10V, V_{GS} = 4.5V$ $I_D = 1A, R_{GEN} = 6\Omega$		10.5	21	ns
Turn-on Rise Time	t_r			4.5	9	
Turn-off Delay Time	$t_{d(off)}$			27.5	55	
Turn-off Fall Time	t_f			4.3	8.6	
Source - Drain Diode Characteristics						
Diode Forward Voltage ³	V_{SD}	$V_{GS} = 0V, I_S = 1.7A$			1.2	V

Notes :

- 1.The maximum current rating is limited by package.
- 2.Pulse Test : Pulse Width $\leq 10\mu s$, duty cycle $\leq 1\%$.
- 3.Pulse Test : Pulse Width $\leq 300\mu s$, duty cycle $\leq 2\%$.
- 4.The power dissipation P_D is limited by $T_{J(MAX)} = 150^\circ\text{C}$.
- 5.Device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ\text{C}$.

Typical Characteristics

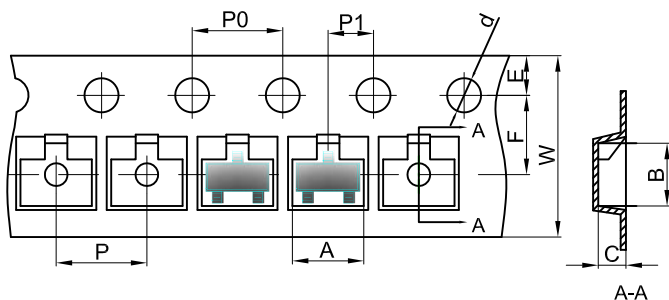


SOT-23 Package Information


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0	0.100	0	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.150	1.500	0.045	0.059
E1	2.250	2.650	0.089	0.104
e	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.550REF		0.022REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

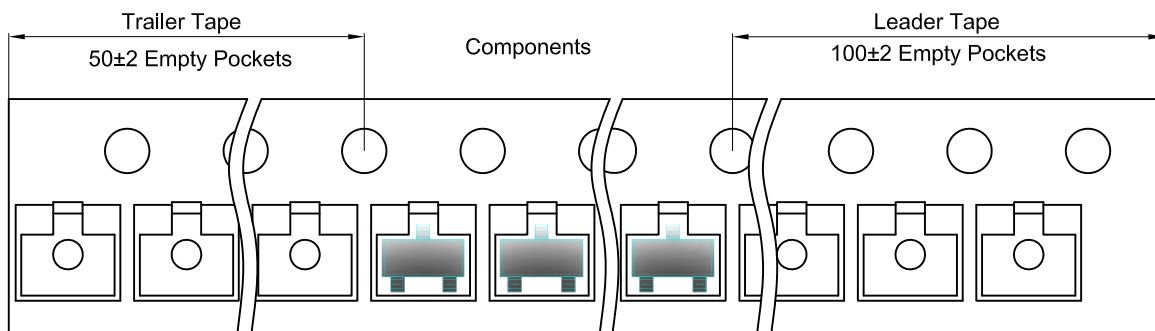
SOT-23 Tape and Reel

SOT-23 Embossed Carrier Tape

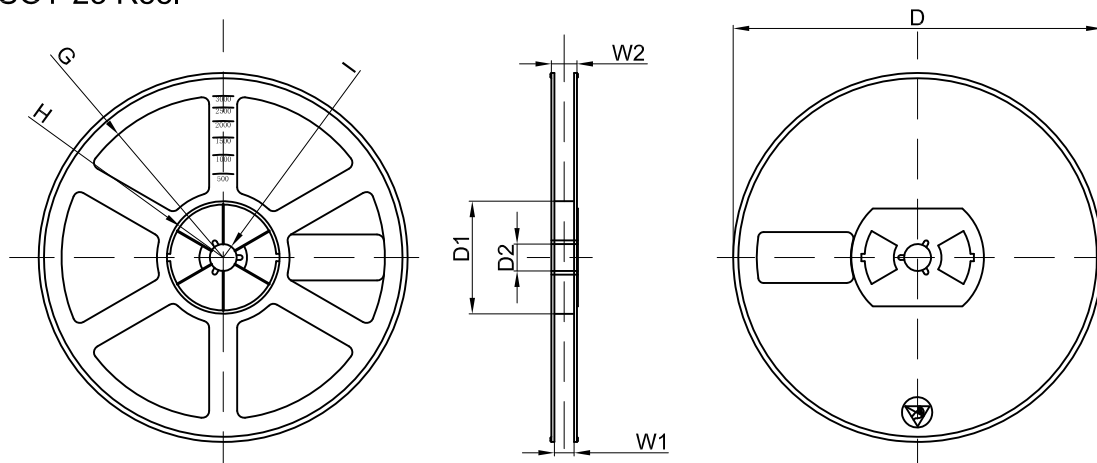


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

SOT-23 Tape Leader and Trailer



SOT-23 Reel



Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7" Dia	Ø178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
3000 pcs	7 inch	30,000 pcs	203×203×195	120,000 pcs	438×438×220	