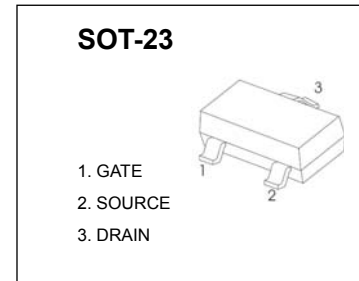


12V P-Channel MOSFETS

MOSFET Product Summary

$V_{(BR)DSS}$	$R_{DS(on)Max.}$	I_D
-12V	55mΩ@-4.5V	-5A
	90mΩ@-2.5V	
	130mΩ@-1.8V	



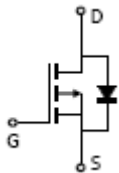
FEATURE

- TrenchFET Power MOSFET

APPLICATION

- Load Switch for Portable Devices
- DC/DC Converter

Equivalent Circuit



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-12	V
Gate-Source Voltage	V_{GS}	± 12	
Continuous Drain Current	I_D	-5	A
Drain Current – Pulsed ¹	I_{DM}	-20	
Maximum Power Dissipation	P_D	1.1	W
Thermal Resistance from Junction to Ambient($t \leq 10s$)	$R_{\theta JA}$	357	$^\circ\text{C/W}$
Junction Temperature	T_J	-50 ~+150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-50 ~+150	

Note 1: Exceed these limits to damage to the device.

Note 2: Exposure to absolute maximum rating conditions may affect device reliability.

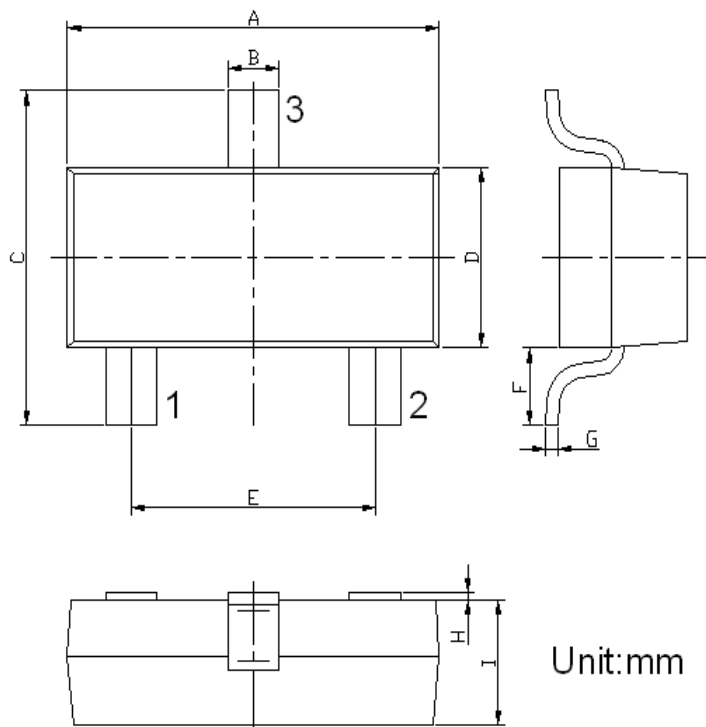
MOSFET ELECTRICAL CHARACTERISTICS
T_a=25 °C unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Static						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-12			V
Gate-source threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-0.45	-0.65	-1.0	
Gate-source leakage	I _{GSS}	V _{GS} = 0V, V _{GS} = ±12V			±100	nA
Zero gate voltage drain current	I _{DSS}	V _{DS} = -12V, V _{GS} = 0V			-1	μA
Drain-source on-state resistance ^e	R _{DS(on)}	V _{GS} = -4.5V, I _D = -4.5A		52	55	mΩ
		V _{GS} = -2.5V, I _D = -3.5A		75	90	
		V _{GS} = -1.8V, I _D = -2.0A		105	130	
Forward transconductance ^a	g _{fs}	V _{DS} = -5V, I _D = -4.1A		6		S
Dynamic						
Input capacitance ^{b,c}	C _{iss}	V _{DS} = -6V, V _{GS} = 0V, f = 1MHz		740		pF
Output capacitance ^{b,c}	C _{oss}			290		
Reverse transfer capacitance ^{b,c}	C _{rss}			190		
Total gate charge ^b	Q _g	V _{DS} = -6V, V _{GS} = -4.5V, I _D = -4.1A		7.8		nC
		V _{DS} = -6V, V _{GS} = -2.5V, I _D = -4.1A		4.5		
Gate-source charge ^b	Q _{gs}	V _{DS} = -6V, V _{GS} = -2.5V, I _D = -4.1A		1.2		nC
Gate-drain charge ^b	Q _{gd}			1.6		
Gate resistance ^{b,c}	R _g		f = 1MHz	1.4	7	
Turn-on delay time ^{b,c}	t _{d(on)}	V _{DD} = -6V, R _L = 1.2Ω, I _D ≈ -3.3A, V _{GEN} = -4.5V, R _g = 1Ω		13		ns
Rise time ^{b,c}	t _r			35		
Turn-off Delay time ^{b,c}	t _{d(off)}			32		
Fall time ^{b,c}	t _f			10		
Turn-on delay time ^{b,c}	t _{d(on)}	V _{DD} = -6V, R _L = 1.2Ω, I _D ≈ -3.3A, V _{GEN} = -8V, R _g = 1Ω		5		ns
Rise time ^{b,c}	t _r			11		
Turn-off delay time ^{b,c}	t _{d(off)}			22		
Fall time ^{b,c}	t _f			16		
Drain-source body diode characteristics						
Continuous source-drain diode current	I _S	T _C = 25°C		-1.4		A
Pulse diode forward current ^a	I _{SM}			-10		
Body diode voltage	V _{SD}	I _F = -3.3A		-1.2		V

Note :

- a. Pulse Test ; Pulse Width ≤300μs, Duty Cycle ≤2%.
- b. Guaranteed by design, not subject to production testing.
- c. These parameters have no way to verify.

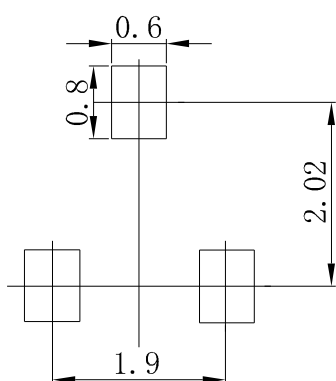
SOT-23 Package Outline Dimensions



Symbol	Dimensions In Millimeters	
	Min	Max
A	2.800	3.000
B	0.300	0.500
C	2.250	2.550
D	1.200	1.400
E	1.800	2.000
F	0.550REF	
G	0.080	0.150
H	0.000	0.100
I	0.900	1.050

Unit:mm

SOT-23 Suggested Pad Layout

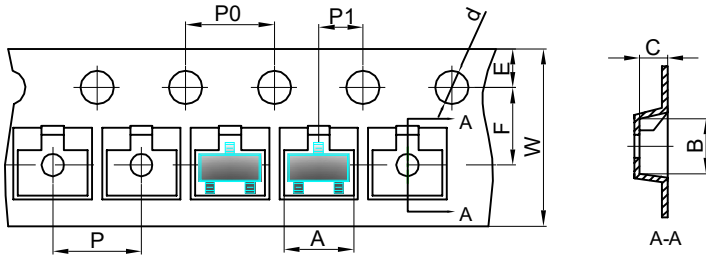


Note:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.

SOT-23 Tape and reel

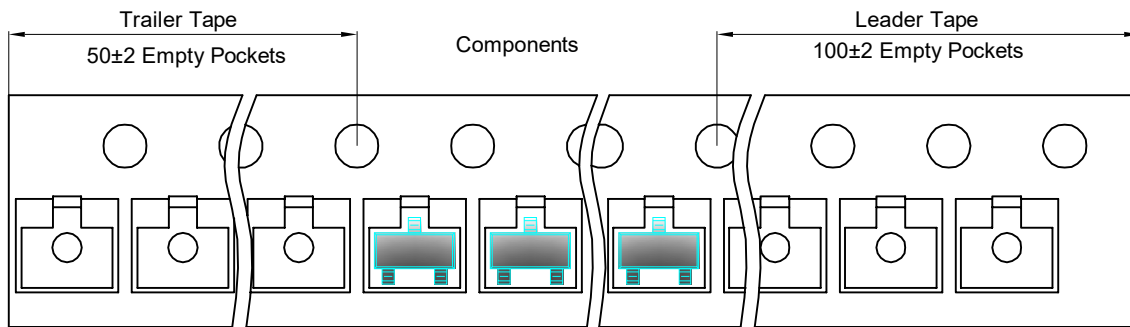
SOT-23 Embossed Carrier Tape



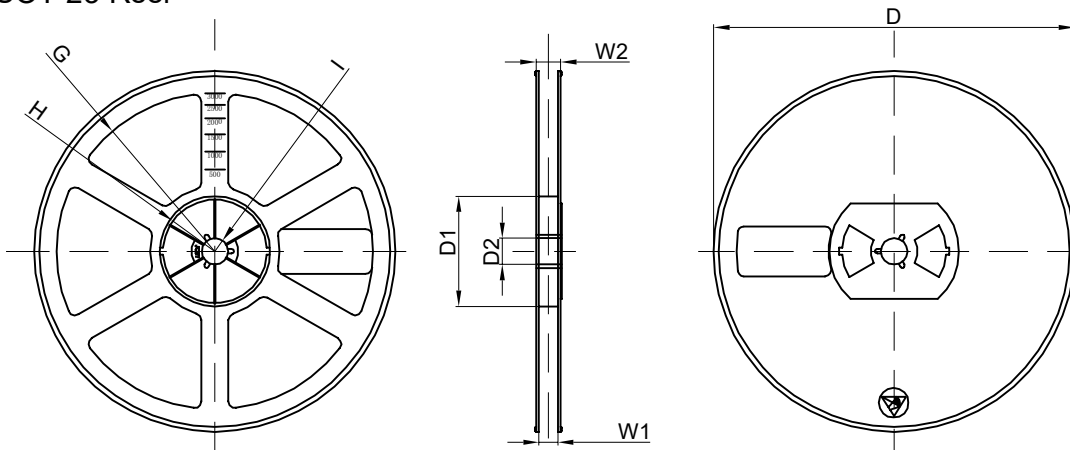
Packaging Description:
 SOT-23 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000 units per 7" or 17.8cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

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	