

SOT-23 Plastic-Encapsulate MOSFET

P -Channel MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-20V	33mΩ@-4.5V	-4A
	45mΩ@-2.5V	
	63mΩ@-1.8V	

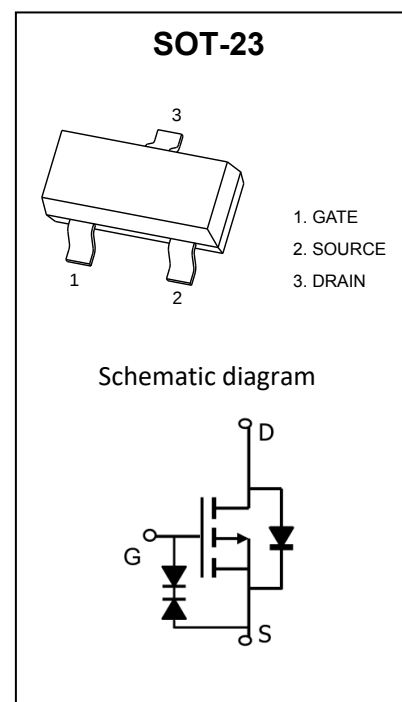
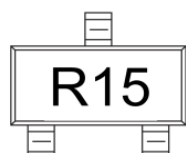
Feature

- Excellent $R_{DS(ON)}$, low gate charge, low gate voltages
- TrenchFET power MOSFET
- ESD protected gate

Application

- Load switch and in PWM applications

MARKING:



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}	± 10	V
Continuous Drain Current($t \leq 10s$)	I_D	-4.0	A
Maximum Power Dissipation($t \leq 10s$)	P_D	0.35	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	357	$^{\circ}\text{C/W}$
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Operating Temperature	T_{OPR}	-45~ +125	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55~ +150	$^{\circ}\text{C}$

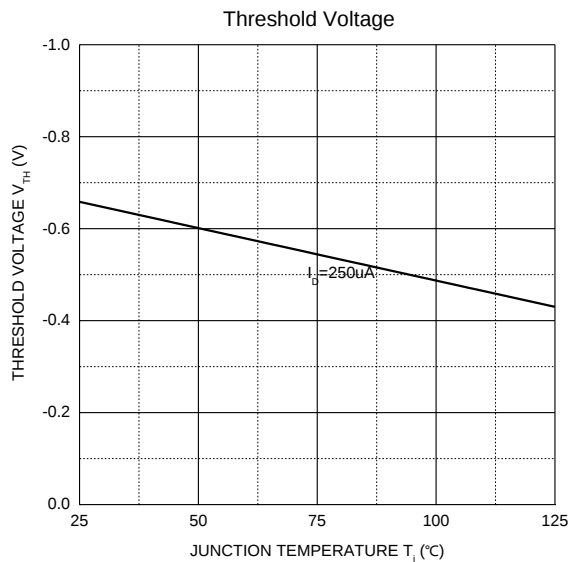
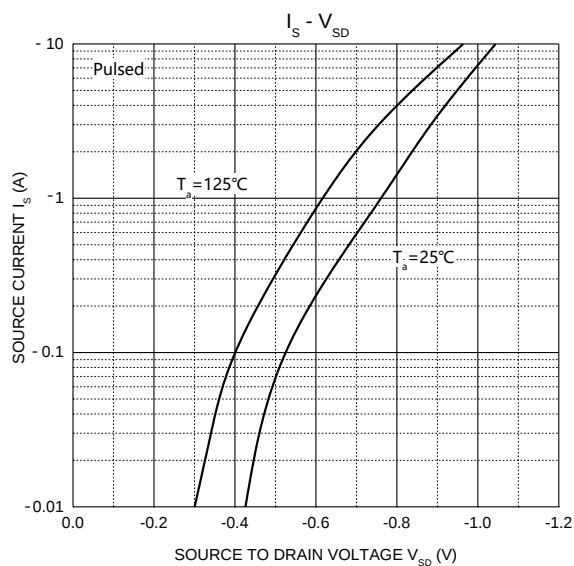
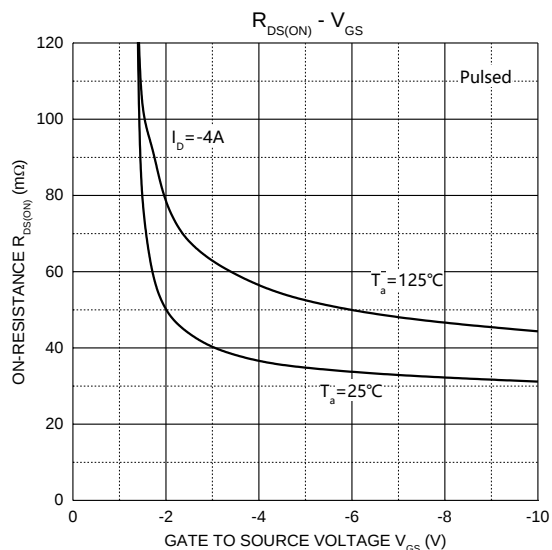
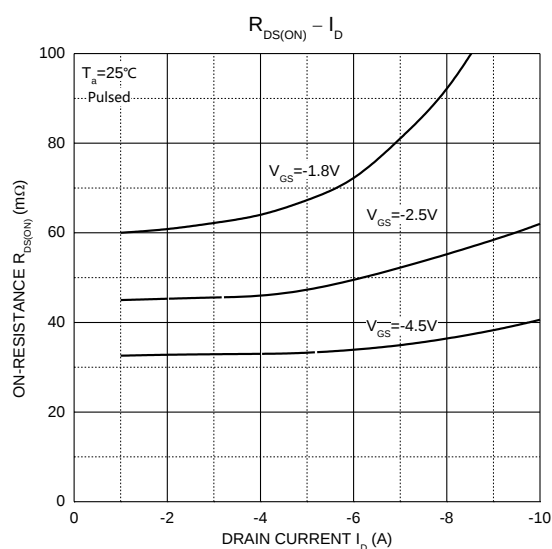
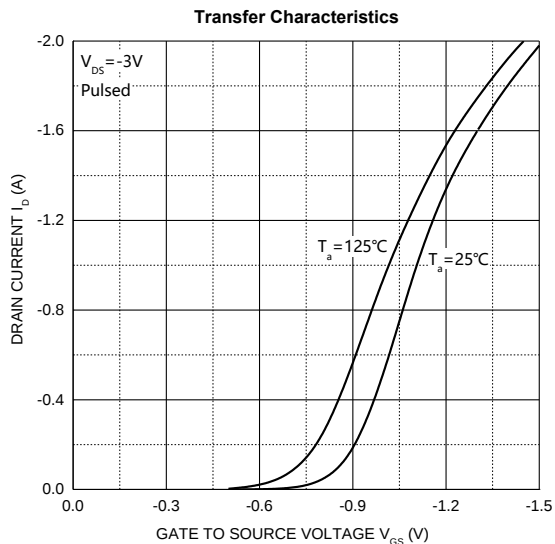
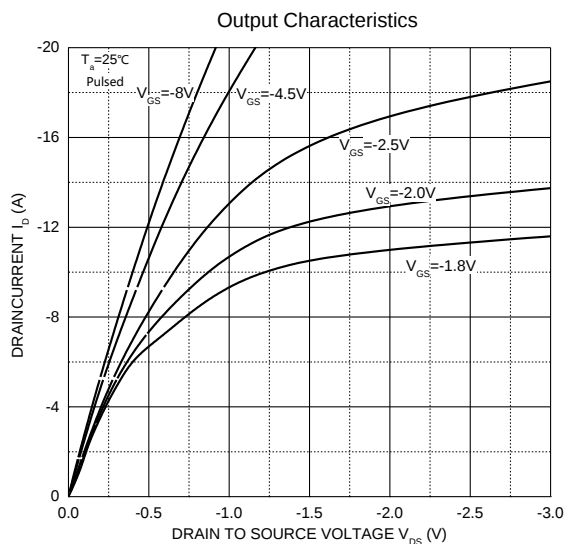
Electrical Characteristics (T_A=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-20			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = -16V, V _{GS} = 0V			-1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ±10V, V _{DS} = 0V			±10	μA
Gate threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-0.4	-0.65	-1.0	V
Drain-source on-resistance ⁽¹⁾	R _{DS(on)}	V _{GS} = -4.5V, I _D = -4A		33	50	mΩ
		V _{GS} = -2.5V, I _D = -4A		45	60	
		V _{GS} = -1.8V, I _D = -2A		63	100	
Forward tranconductance ⁽²⁾	g _{FS}	V _{DS} = -5V, I _D = -4A	8			S
Dynamic characteristics ⁽³⁾						
Input Capacitance	C _{iss}	V _{DS} = -10V, V _{GS} = 0V, f = 1MHz		1450		pF
Output Capacitance	C _{oss}			205		
Reverse Transfer Capacitance	C _{rss}			160		
Gate resistance	R _g	V _{DS} = 0V, V _{GS} = 0V, f = 1MHz		6.5		Ω
Switching Characteristics						
Turn-on delay time ⁽³⁾	t _{d(on)}	V _{DS} = -10V, V _{GS} = -4.5V R _{GEN} = 3Ω, R _L = 2.5Ω,		9.5		ns
Turn-on rise time ⁽³⁾	t _r			17		
Turn-off delay time ⁽³⁾	t _{d(off)}			94		
Turn-off fall time ⁽³⁾	t _f			35		
Total gate charge	Q _g	V _{DS} = -10V, V _{GS} = -4.5V, I _D = -4A		17.2		nC
Gate-source charge	Q _{gs}			1.3		
Gate-drain charge	Q _{gd}			4.5		
Source-Drain Diode characteristics						
Diode Forward voltage ⁽²⁾	V _{DS}	V _{GS} = 0V, I _S = -1A			-1	V

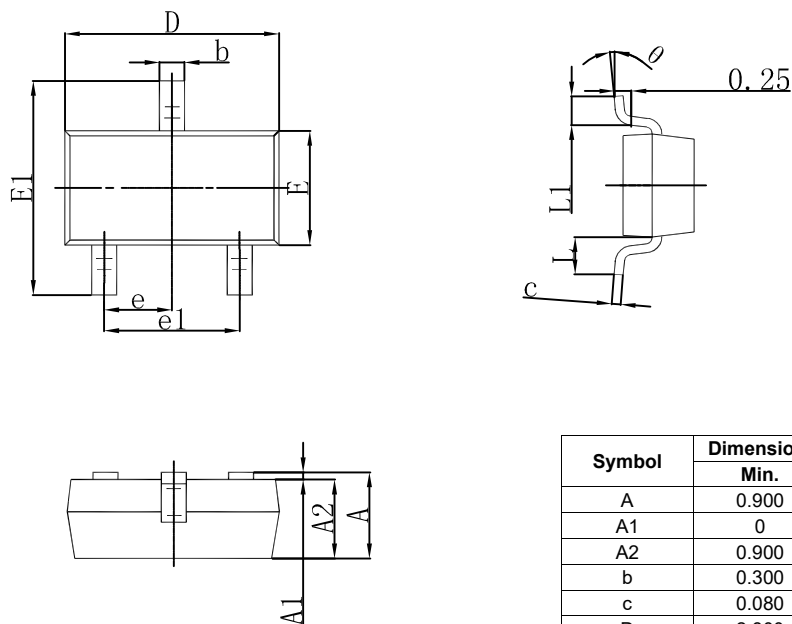
Notes:

1. Repetitive rating, pulse width limited by junction temperature.
2. Pulse Test : Pulse width ≤ 300μs, duty cycle ≤ 2%.
3. These parameters have no way to verify.

Typical Characteristics

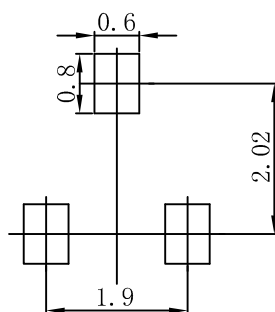


SOT-23 Package Outline Dimensions



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 Suggested Pad Layout



Note:

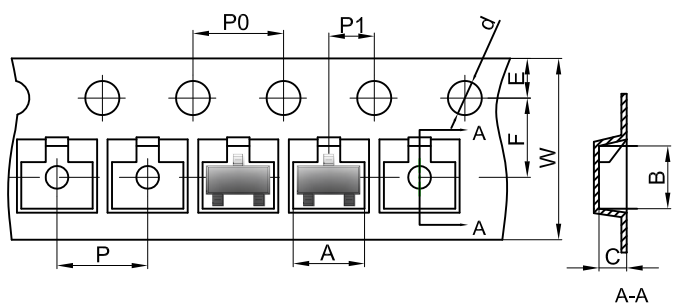
1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.

NOTICE

JSMD reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to any product herein. JSMD does not assume any liability arising out of the application or use of any product described herein.

Reel Taping Specifications For Surface Mount Devices-SOT-23

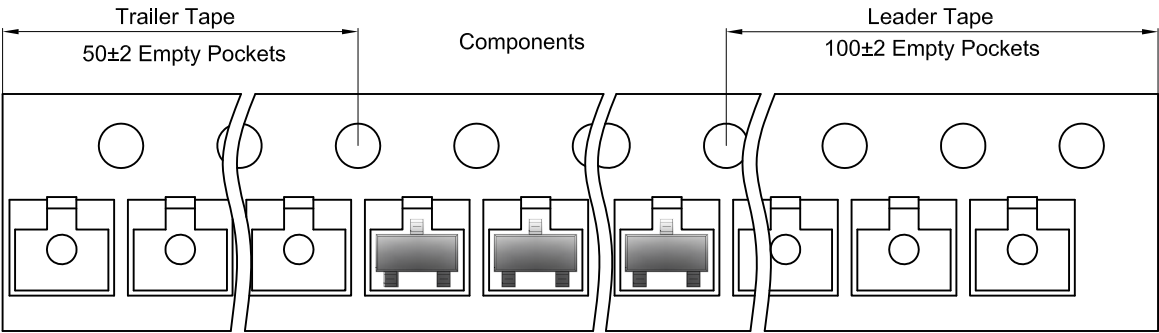
SOT-23 Embossed Carrier Tape



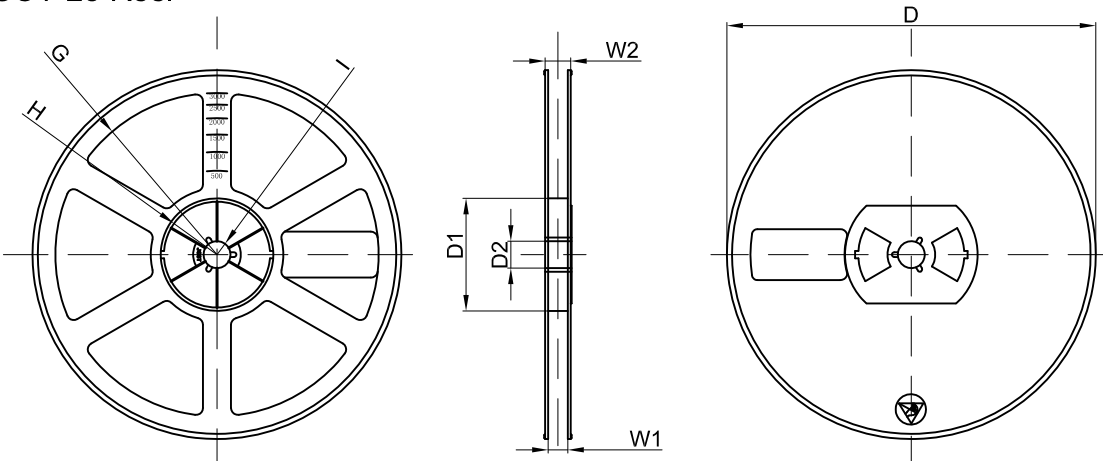
Packaging Description:
SOT-23 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. 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	45,000 pcs	203×203×195	180,000 pcs	438×438×230	