

SOT-323 Plastic-Encapsulate MOSFETS P-CHANNEIMOSFET

DESCRIPTION

These miniature surface mount MOSFETs reduce power loss conserve energy, making this device ideal for use in small power management circuitry.

SOT-323



FEATURE

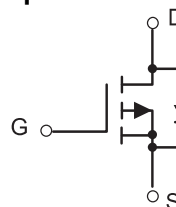
- Energy Efficient
- Low Threshold Voltage
- High-speed Switching
- Miniature Surface Mount Package Saves Board Space

APPLICATION

- DC-DC converters, load switching, power management in portable and battery-powered products such as computers, printers, cellular and cordless telephones.

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-50V	8Ω@-10V	-0.13A
	10Ω@-5V	

Equivalent Circuit



MARKING



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-50	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	-0.13	A
Pulsed Drain Current (note 1) @tp <10 μs	I_{DM}	-0.52	A
Power Dissipation	P_D	225	mW
Thermal Resistance from Junction to Ambient (note 2)	$R_{\theta JA}$	556	°C/W
Operation Junction and Storage Temperature Range	T_J, T_{STG}	-55~+150	°C
Maximum Lead Temperature for Soldering Purposes , Duration for 5 Seconds	T_L	260	°C

$T_a=25^{\circ}\text{C}$ unless otherwise specified

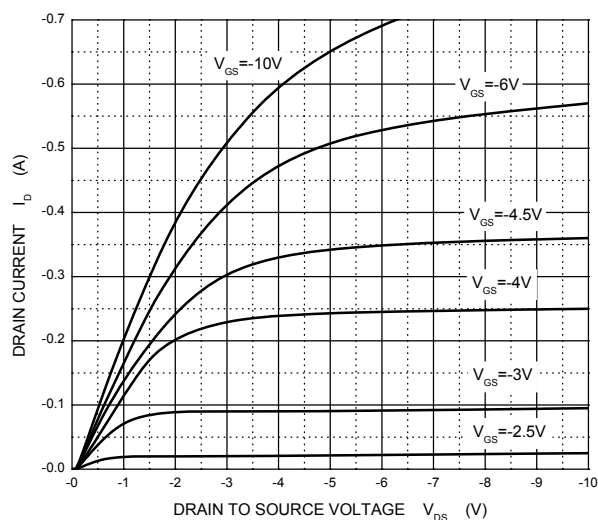
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
STATIC CHARACTERISTICS						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-50			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = -50V, V_{GS} = 0V$			-15	μA
		$V_{DS} = -25V, V_{GS} = 0V$			-0.1	μA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 5	μA
Gate threshold voltage (note 3)	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.9	-1.6	-2	V
Drain-source on-resistance (note 3)	$R_{DS(on)}$	$V_{GS} = -5V, I_D = -0.1A$		5.8	10	Ω
		$V_{GS} = -10V, I_D = -0.1A$		4.5	8	Ω
Forward transconductance (note 1)	g_{FS}	$V_{DS} = -25V; I_D = -100mA$	50			mS
DYNAMIC CHARACTERISTICS (note 4)						
Input capacitance	C_{iss}	$V_{DS} = 5V, V_{GS} = 0V, f = 1MHz$		30		pF
Output capacitance	C_{oss}			10		pF
Reverse transfer capacitance	C_{rss}			5		pF
SWITCHING CHARACTERISTICS (note 4)						
Turn-on delay time	$t_{d(on)}$	$V_{DD} = -15V,$ $R_L = 50\Omega, I_D = -2.5A$		2.5		ns
Turn-on rise time	t_r			1		ns
Turn-off delay time	$t_{d(off)}$			16		ns
Turn-off fall time	t_f			8		ns
SOURCE-DRAIN DIODE CHARACTERISTICS						
Continuous Current	I_S				-0.13	A
Pulsed Current	I_{SM}				-0.52	A
Diode forward voltage (note 3)	V_{SD}	$I_S = -0.13A, V_{GS} = 0V$			-2.2	V

Notes :

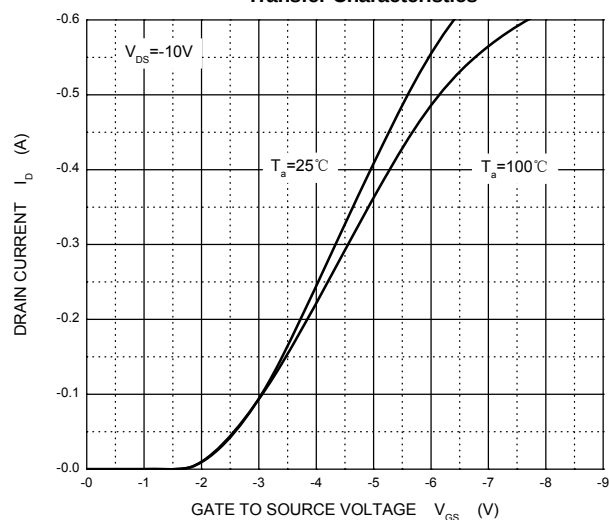
1. Repetitive rating : Pulse width limited by junction temperature.
2. Surface mounted on FR4 board , $t \leq 10s$.
3. Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to producing.

Typical Characteristics

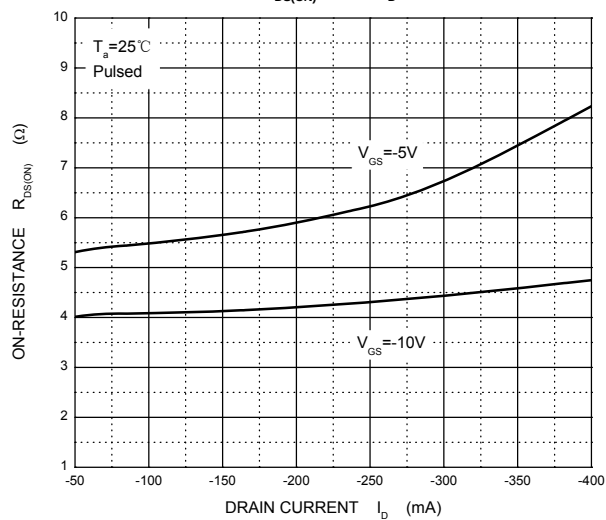
Output Characteristics



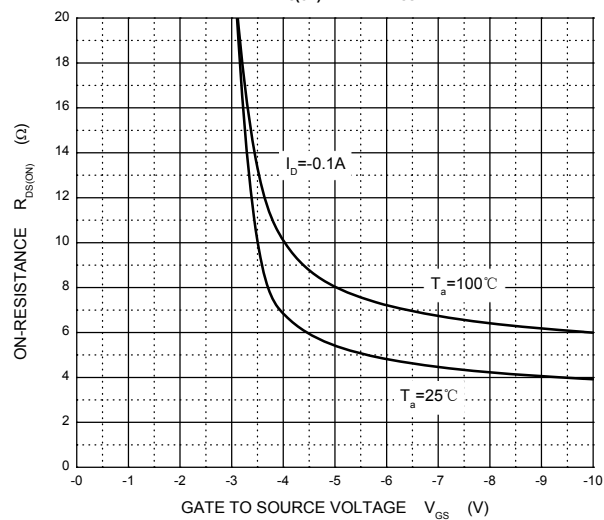
Transfer Characteristics



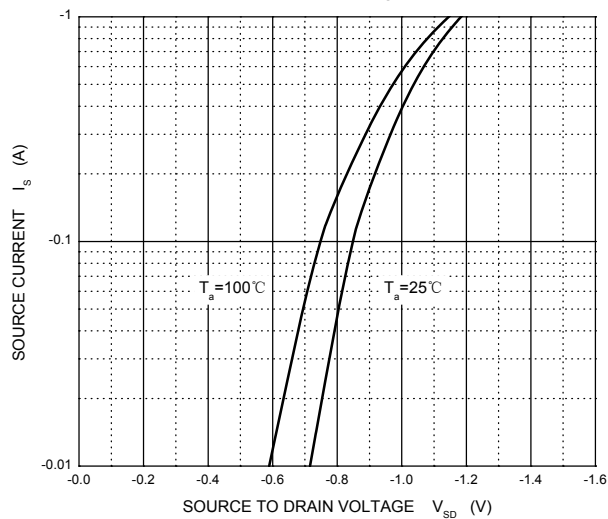
$R_{DS(ON)}$ — I_D



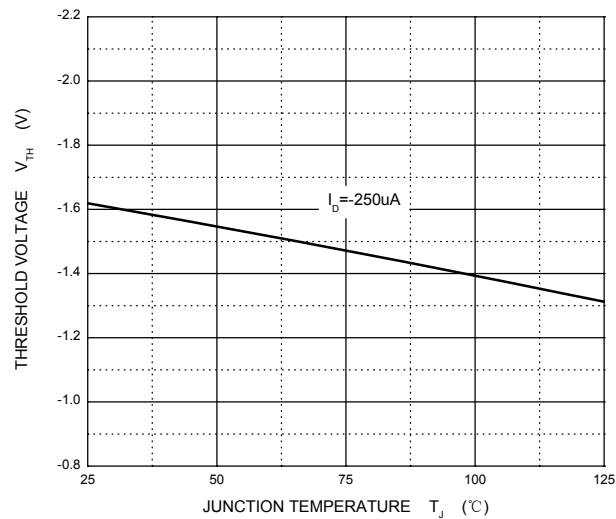
$R_{DS(ON)}$ — V_{GS}



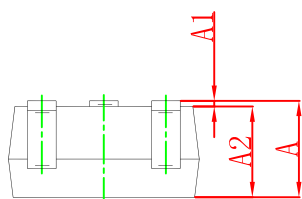
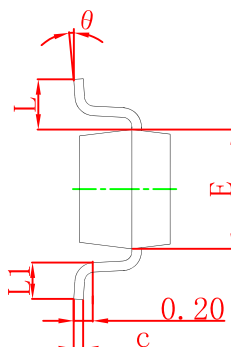
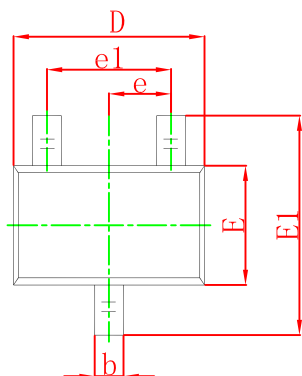
I_S — V_{SD}



Threshold Voltage

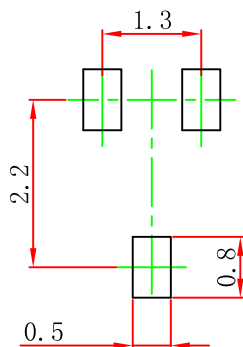


SOT-323 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.200	0.400	0.008	0.016
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

SOT-323 Suggested Pad Layout

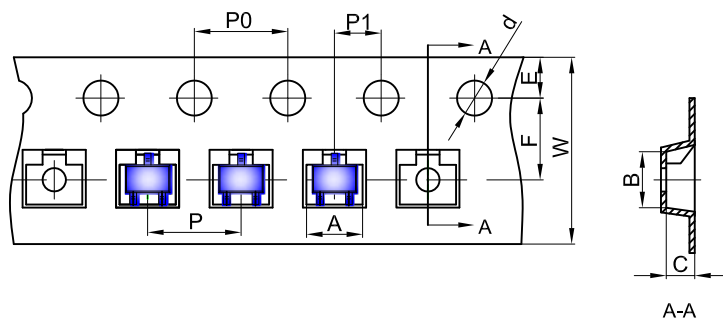


Note:

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

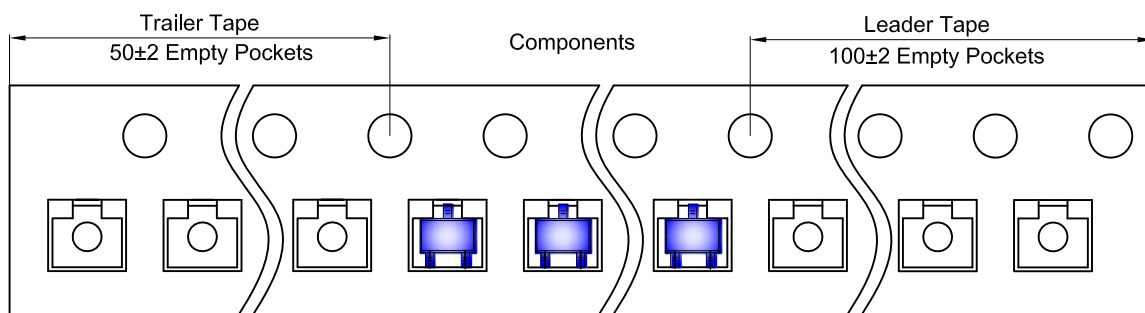
SOT-323 Tape and Reel

SOT-323 Embossed Carrier Tape

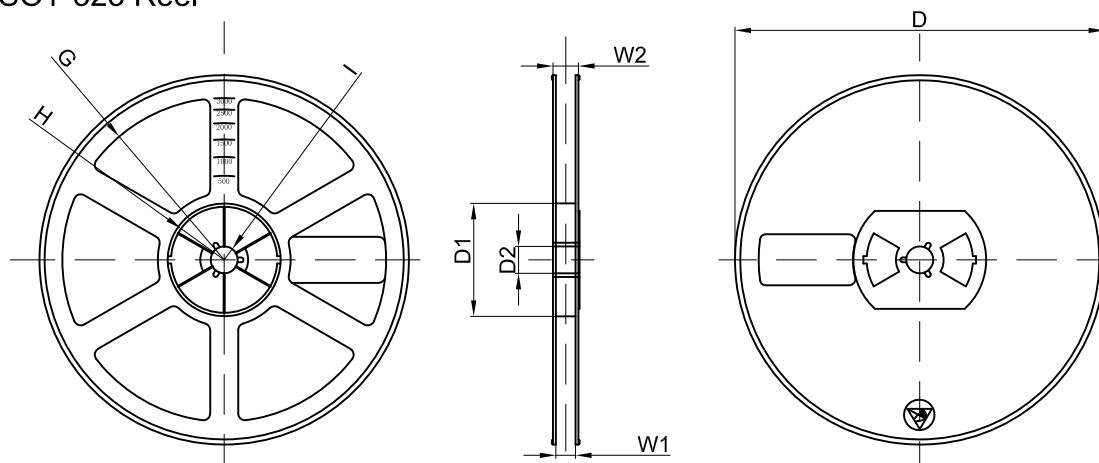


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-323	2.25	2.55	1.19	Ø1.55	1.75	3.50	4.00	4.00	2.00	8.00

SOT-323 Tape Leader and Trailer



SOT-323 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	438×438×220	