

1.Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
20V	200mΩ@4.5V	0.75A
	300mΩ@2.5V	

2.Features

- V_{DS} 20V
- I_D 0.75A
- $R_{DS(ON)}$ (at $V_{GS}=4.5V$) <350 mohm
- $R_{DS(ON)}$ (at $V_{GS}=2.5V$) <450 mohm
- Lead Free Product is Acquired
- Surface Mount Package
- N-Channel Switch with Low $R_{DS(on)}$
- Operated at Low Logic Level Gate Drive
- ESD Protected Up to 2.0KV (HBM)

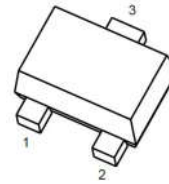
3.Applications

- Load/Power Switching
- Interfacing Switching
- Battery Management for Ultra Small Portable Electronics
- Logic Level Shift

4.Absolute Maximum rating ($T_A = 25^\circ C$ unless otherwise noted)

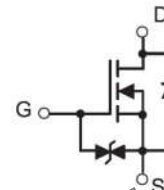
Parameter		Symbol	Value	Unit
Drain - Source Voltage		V_{DS}	20	V
Gate - Source Voltage		V_{GS}	±12	V
Continuous Drain Current	$T_C = 25^\circ C$	I_D	0.75	A
Continuous Drain Current	$T_A = 75^\circ C$		0.6	A
Pulsed Drain Current ¹		I_{DM}	3	A
Power Dissipation ²		P_D	150	mW
Thermal Resistance from Junction to Ambient ²		$R_{\theta JA}$	833	$^\circ C/W$
Junction Temperature		T_J	150	$^\circ C$
Storage Temperature		T_{STG}	-55~ +150	$^\circ C$

SOT-723

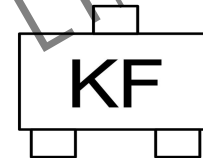


PIN1:GATE
PIN2:SOURCE
PIN3:DRAIN

Schematic diagram



Marking



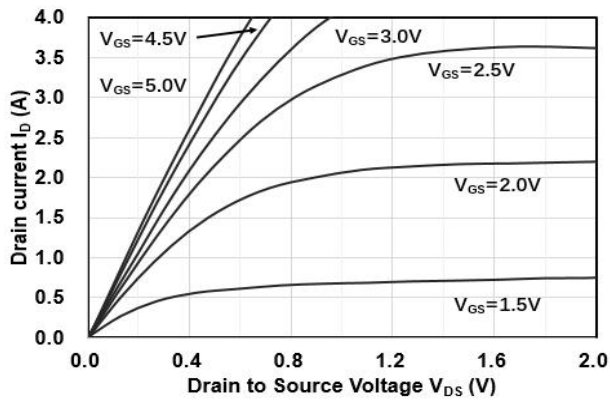
5. Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain - Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	20			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 20V, V_{GS} = 0V$			1	μA
Gate - Body Leakage Current	I_{GSS}	$V_{GS} = \pm 10V, V_{DS} = 0V$			± 10	μA
Gate Threshold Voltage ³	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.4	0.7	1	V
Drain-source On-resistance ³	$R_{DS(on)}$	$V_{GS}= 4.5V, I_D=0.5A$		200	350	m Ω
		$V_{GS}= 2.5V, I_D=0.45A$		300	450	
		$V_{GS}= 1.8V, I_D=0.4A$		450	700	
Dynamic Characteristics ⁴						
Input Capacitance	C_{iss}	$V_{DS}=10V, V_{GS}=0V, f=1MHZ$		33		pF
Output Capacitance	C_{oss}			20		
Reverse Transfer Capacitance	C_{rss}			10		
Gate Resistance	R_g	$f=1MHz, \text{Open Drain}$		50		Ω
Switching Characteristics ⁴						
Total Gate Charge	Q_g	$V_{GS}=4.5V, V_{DS}=10V, I_D=0.5A$		0.8		nC
Gate-source Charge	Q_{gs}			0.3		
Gate-drain Charge	Q_{gd}			0.15		
Turn-on Delay Time	$t_{d(on)}$	$V_{GS}=4.5V, V_{DD}=10V, R_G=10\Omega, I_D=500mA$		4		ns
Turn-on Rise Time	t_r			18.8		
Turn-off Delay Time	$t_{d(off)}$			10		
Turn-off Fall Time	t_f			23		
Source - Drain Diode Characteristics						
Diode Forward Voltage ³	V_{SD}	$V_{GS} = 0V, I_S = 0.5A$			1.2	V

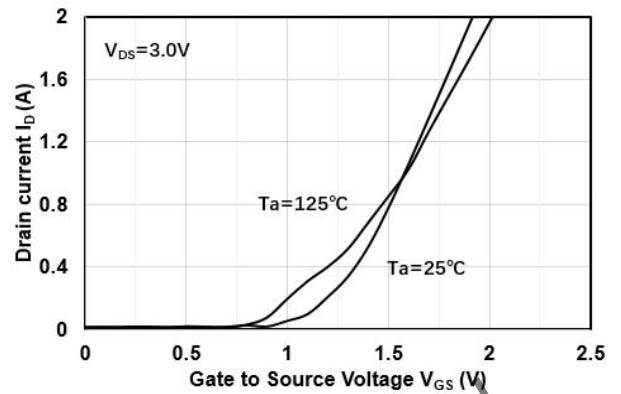
Notes :

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. This test is performed with no heat sink at $T_A = 25^\circ\text{C}$.
3. Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 0.5\%$.
4. These parameters have no way to verify.

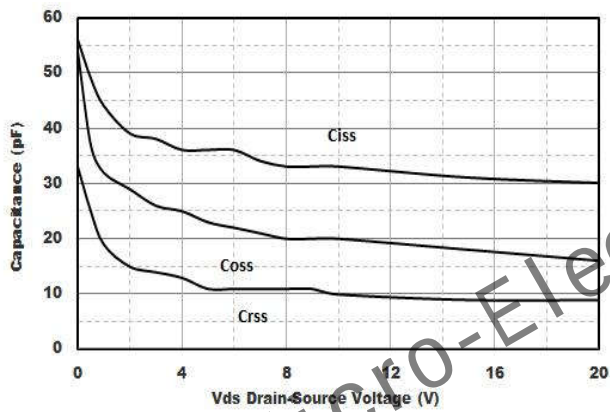
6. Typical Characteristic



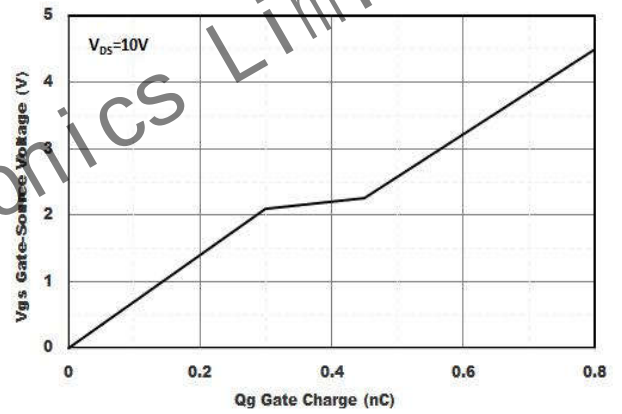
Output Characteristics



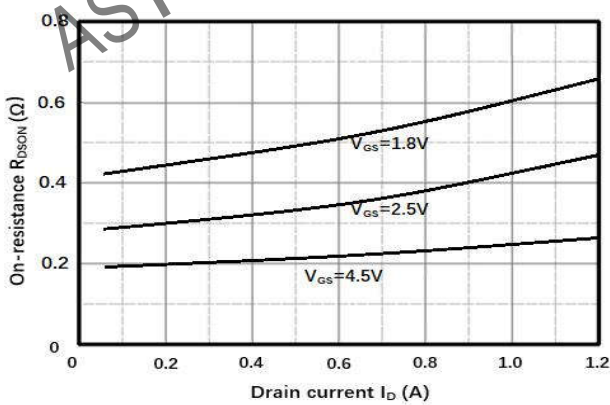
Transfer Characteristics



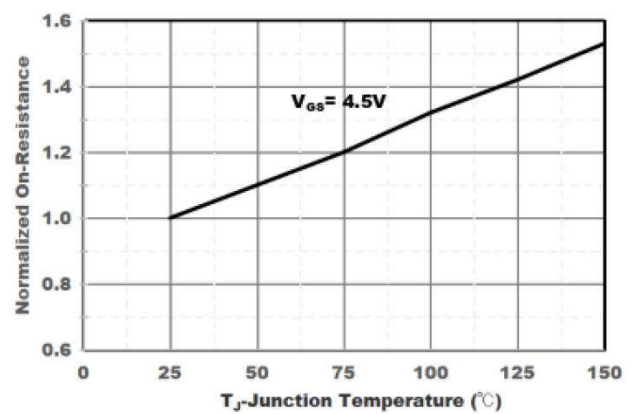
Capacitance Characteristics



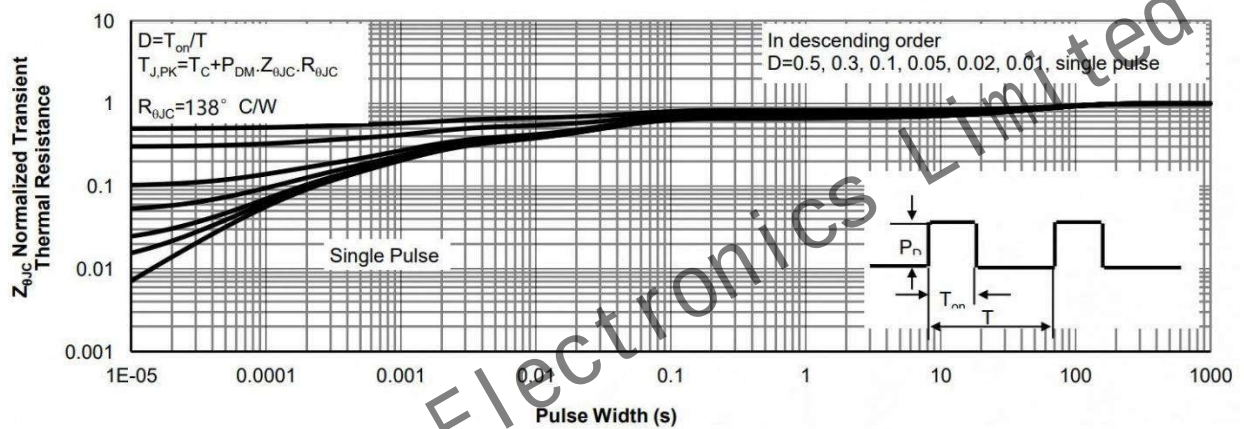
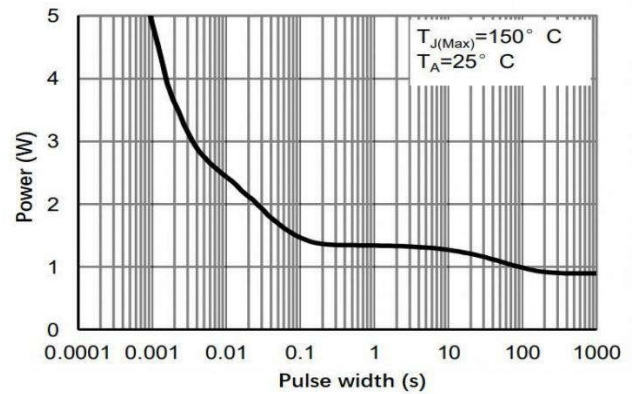
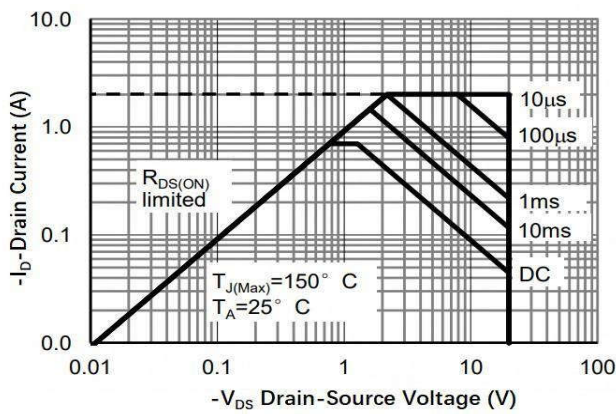
Gate Charge



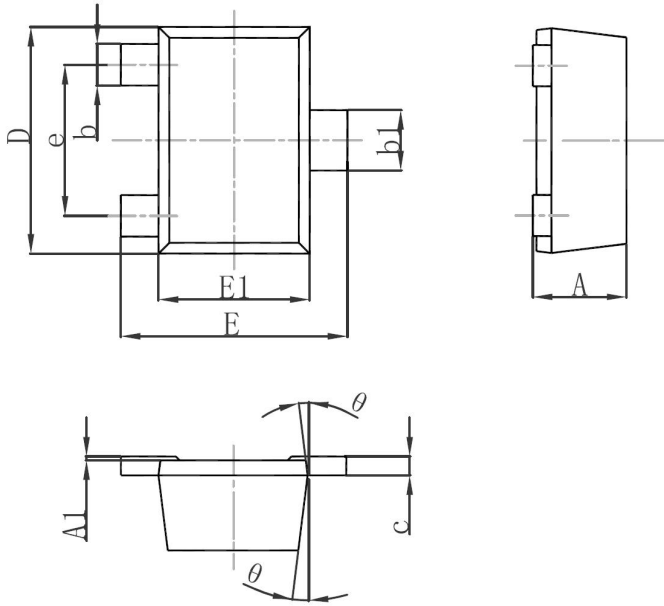
Drain-Source on Resistance



Drain-Source on Resistance

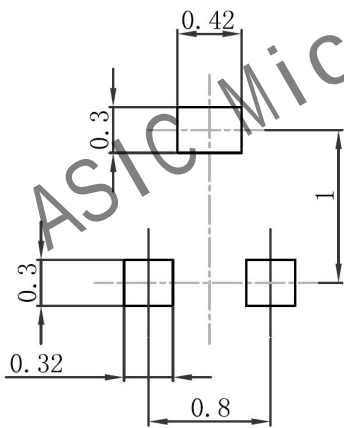


7.Dimension



Symbol	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.430	0.500	0.017	0.020
A1	0.000	0.050	0.000	0.002
b	0.170	0.270	0.007	0.011
b1	0.270	0.370	0.011	0.015
c	0.080	0.150	0.003	0.006
D	1.150	1.250	0.045	0.049
E	1.150	1.250	0.045	0.049
E1	0.750	0.850	0.030	0.033
e	0.800TYP.		0.031TYP.	
θ	7° REF.		7° REF.	

8.Recommended Land Pattern

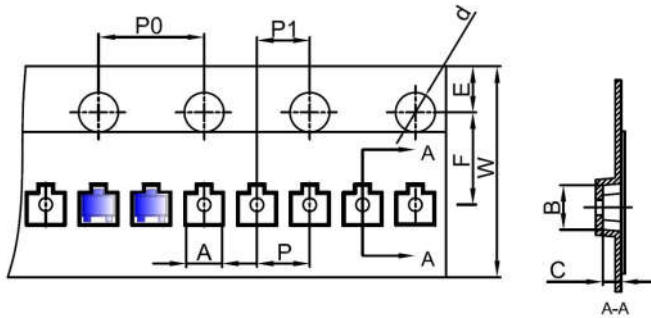


Note:

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

9.Tape and Reel

SOT-723 Embossed Carrier Tape

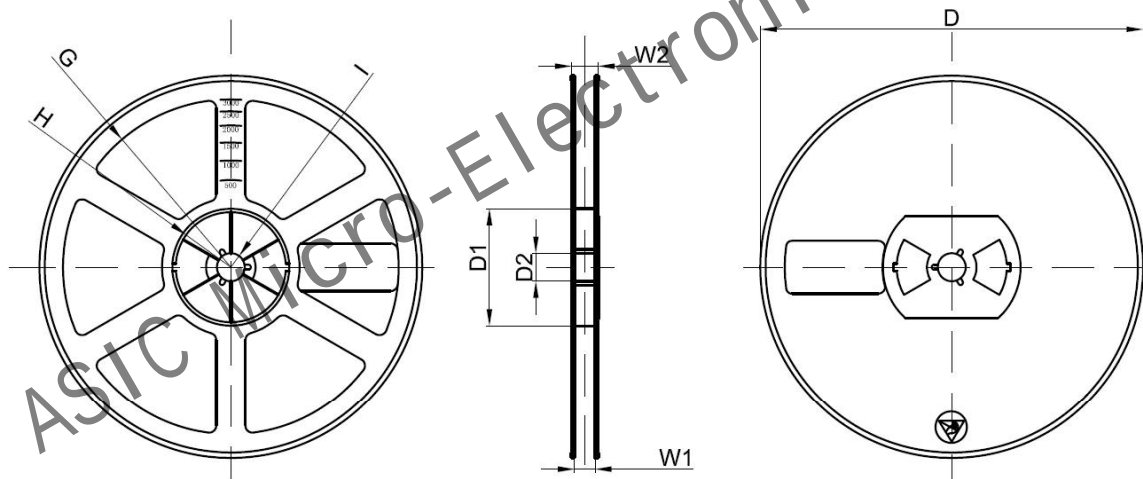


Packaging Description:

SOT-723 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 8,000 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-723	1.33	1.45	0.61	Ø1.50	1.75	3.50	4.00	2.00	2.00	8.00

SOT-723 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)
8000 pcs	7 inch	120,000 pcs	203×203×195	480,000 pcs	438×438×220	

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