

FEATURES

Fast switching
Low RDS(ON)
Trench MOSFET technology
This is a Pb Free Device
We declare that the material of product compliance with
RoHS requirements and Halogen Free.

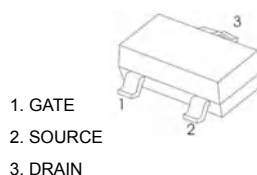
APPLICATIONS

Super Low Gate Charge
Green Device Available
Excellent CdV/dt effect decline
Advanced high cell density Trench
technology

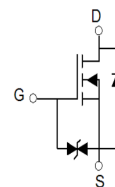
V_{DS} 30 V
 I_D 1.0 A
 $R_{DS(ON)}$ 0.27 Ω

1N03

SOT-23



Equivalent Circuit



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

MAXIMUM RATINGS

Parameter	Symbol	Limits	Unit
Drain-to-Source Voltage	V_{DS}	30	V
Gate-to-Source Voltage	V_{GS}	± 10	V
Drain Current (Note 1) Steady State ($T_A = 25^\circ\text{C}$) ($T_A = 100^\circ\text{C}$)	I_D	1000 590	mA
Power Dissipation (Note 1) Steady State	P_D	715	mW
Pulsed Drain Current ($t_p = 10 \mu\text{s}$)	I_{DM}	3.7	A
Operating Junction and Storage Temperature Range	T_J, T_{STG}	$-55 \sim +150$	$^\circ\text{C}$
Lead Temperature for Soldering Purposes ($1/8''$ from case for 10 s)	T_L	260	$^\circ\text{C}$

THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Junction-to-Ambient – Steady State (Note 1)	$R_{\theta JA}$	305	$^\circ\text{C/W}$

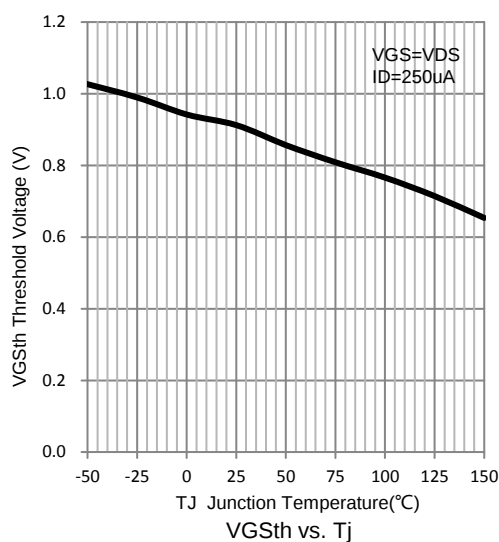
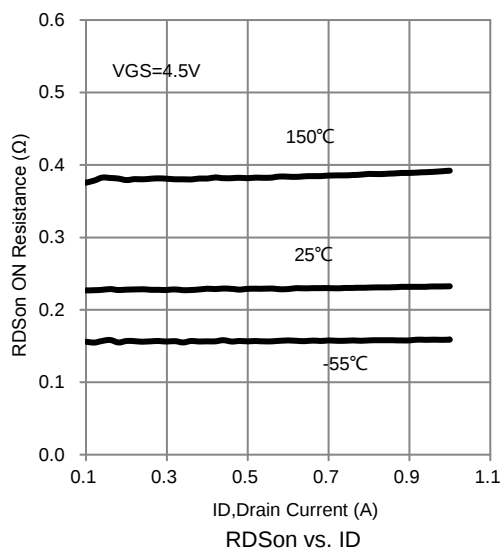
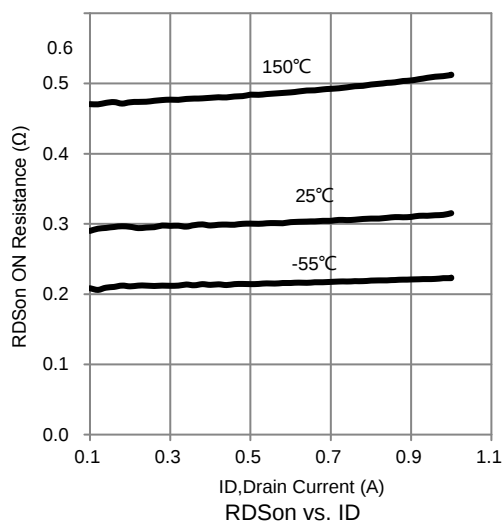
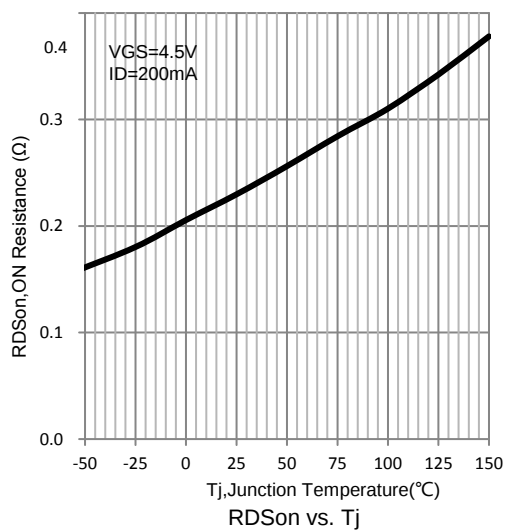
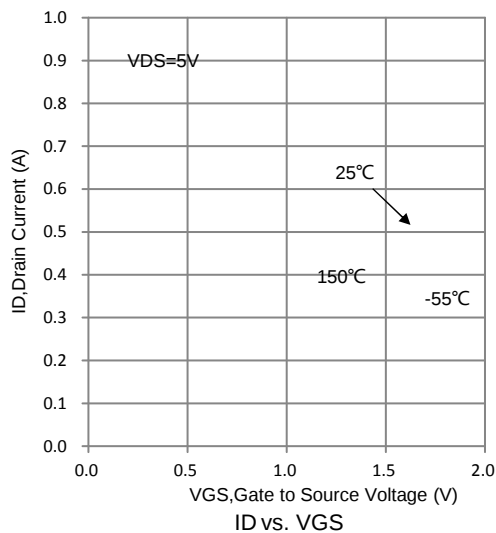
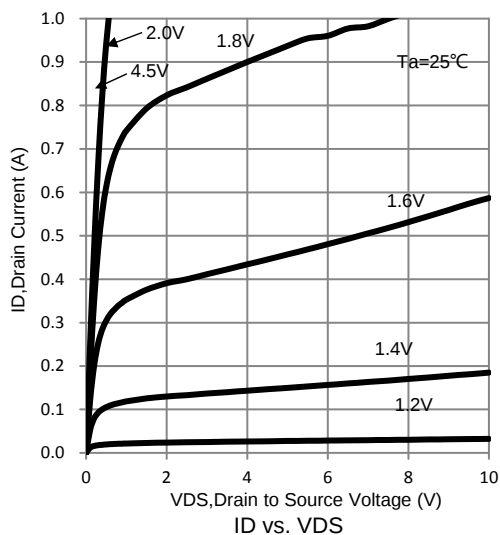
Note 1: Surface-mounted on FR4 board using 1 in sq pad size (Cu area = 1.127 in sq [1 oz] including traces)

Electrical Characteristics (T_J=25°C unless otherwise specified)

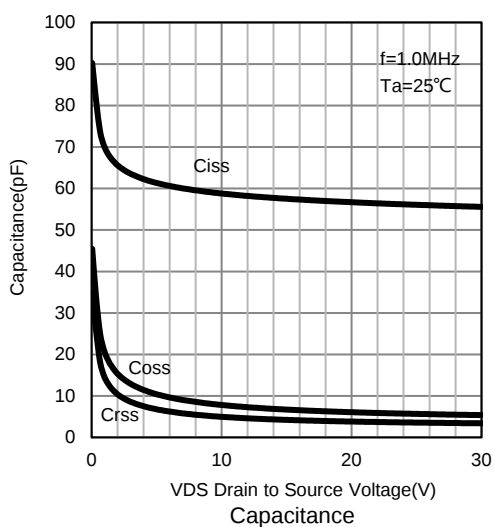
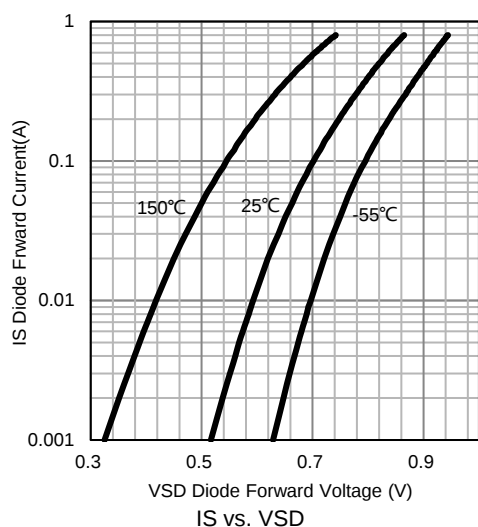
Characteristic	Symbol	Min.	Typ.	Max.	Unit	
STATIC CHARACTERISTICS						
Drain-Source Breakdown Voltage (VGS =0V, ID =250μA)	V(BR)DSS	30	-	-	V	
Gate Threshold Voltage (VDS =VGS , ID =250μA)	VGS(th)	0.6	1.0	1.2		
Gate-Body Leakage Current (VDS =0V, VGS =±10V)	IGSS	-	-	±10	μA	
Zero Gate Voltage Drain Current (VDS =30V, VGS =0V)	IDSS	-	-	1		
Drain-Source On-Resistance (VGS =4.5V, ID = 200mA)	RDS(ON)	-	0.27	0.4	Ω	
Drain-Source On-Resistance (VGS =2.5V, ID = 200mA)		-	0.4	0.6		
Diode Forward Voltage (IS =300mA, VGS =0V)	VSD	-	-	1.2	V	
DYNAMIC PARAMETERS						
Total Gate Charge	(VDS =15V, VGS =4.5V, ID =1.0A)	Qg	-	0.65	0.87	nC
Gate-Source Charge		Qgs	-	0.14	-	
Gate-Drain Charge		Qgd	-	0.18	-	
Input Capacitance	(VDS =25V, VGS =0V, f=1MHz)	Ciss	-	37	56	pF
Output Capacitance		Coss	-	8.6	-	
Reverse Transfer Capacitance		Crss	-	5.4	-	
Turn-On Delay Time	(VDS =15V, RL =15Ω, VGEN =4.5V, RG =6 Ω)	td(on)	-	6.5	13	ns
Rise Time		tr	-	9.5	-	
Turn-Off Delay Time		td(off)	-	14	28	
Fall Time		tf	-	5.5	-	

Note 2: Pulse test; pulse width ≤ 300μs, duty cycle ≤ 2%

RATING AND CHARACTERISTIC CURVES

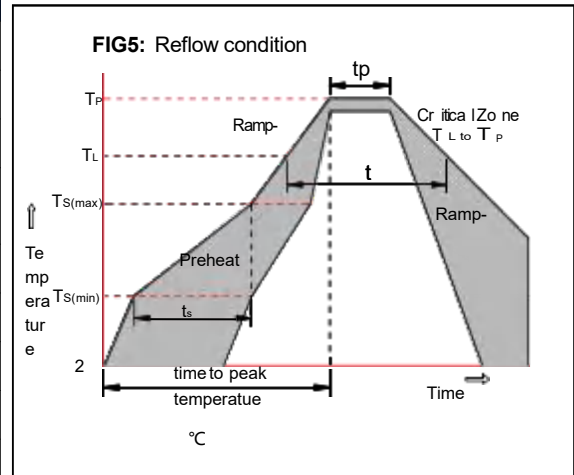


RATING AND CHARACTERISTIC CURVES



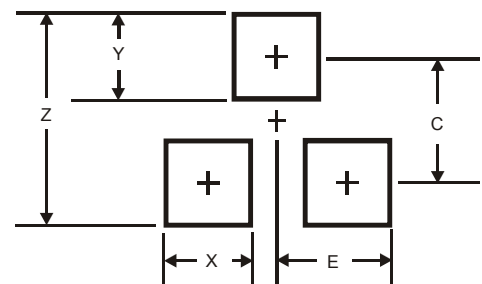
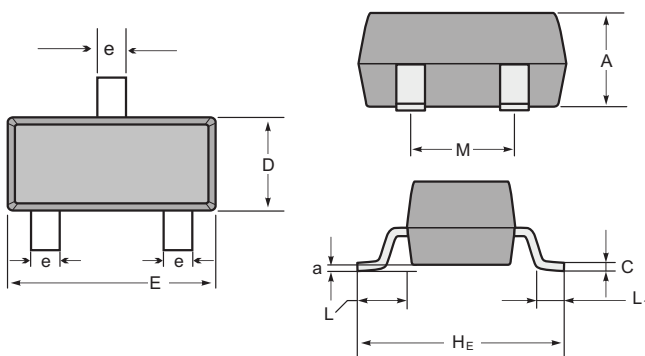
Soldering parameters

Reflow Condition		Pb-Free assembly (see as below)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150°C
	-Temperature Max($T_{s(max)}$)	+200°C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3°C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217°C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_P)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_P)		30 secs. Max
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260°C



Package Dimensions & Suggested Pad Layout

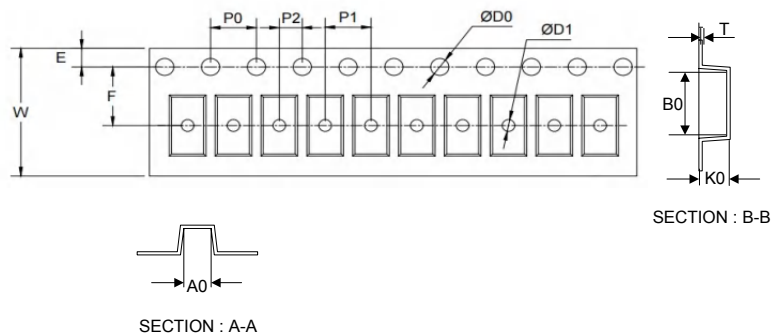
SOT23



SOT-23 mechanical data

UNIT		A	C	D	E	H _E	e	M	L	L ₁	a
mm	max	1.1	0.15	1.4	3.0	2.6	0.5	1.95	0.55 (ref)	0.36 (ref)	0.0
	min	0.9	0.08	1.2	2.8	2.2	0.3	1.7			0.15
mil	max	43	6	55	118	102	20	77	22 (ref)	14 (ref)	0.0
	min	35	3	47	110	87	12	67			6

Dimensions	SOT23
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35

Tape

Symbol	Dimension (mm)
P0	4.00±0.10
P1	4.00±0.10
P2	2.00±0.10
D0	1.55±0.10
D1	1.05±0.10
E	1.55±0.10
F	3.60±0.10
W	8.00±0.10
A0	3.80±0.20
B0	3.25±0.20
K0	1.45±0.10
T	0.25±0.05
D2	178.0±3.0
D3	55Min.
D4	R24.0±3.0
G	R82.0±3.0
I	13.0±2.0
W1	11.0±3.0

Quantity: 3000PCS

7" Reel

