

Features

Surface Mount Package
Low $R_{DS(on)}$
Operated at Low Logic Level Gate Drive
ESD Protected Gate

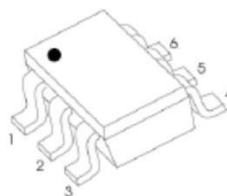
V_{DS} -20/20 V
 I_D -0.66/0.66 A
 $R_{DS(on)}$ 450/190 $m\Omega$

49K

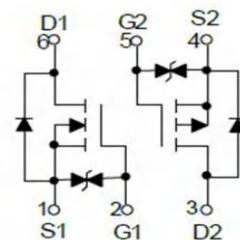
Applications

Load/ Power Switching
Interfacing Switching
Battery Management for Ultra Small Portable Electronics

SOT-363



Equivalent Circuit



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings (@ $T_a = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
P-MOSFET			
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current ⁽¹⁾	I_D	-0.66	A
Pulsed Drain Current ($t_p=10\mu\text{s}$)	I_{DM}	-1.2	A
N-MOSFET			
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 8	V
Continuous Drain Current ⁽¹⁾	I_D	0.75	A
Pulsed Drain Current($t_p=10\mu\text{s}$)	I_{DM}	1.8	A
Temperature and Thermal Resistance			
Thermal Resistance from Junction to Ambient ⁽¹⁾	$R_{\theta JA}$	833	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~ +150	$^\circ\text{C}$
Lead Temperature for Soldering Purposes(1/8" from case for 10s)	T_L	260	$^\circ\text{C}$

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 =-250μA	-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} =±10V, V _{DS} = 0V			±20	μA
Gate threshold voltage ⁽²⁾	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-0.35	-0.60	-1.1	V
Drain-source on-resistance ⁽²⁾	R _{DS(on)}	V _{GS} =-4.5V, I _D =-1A		450	520	mΩ
		V _{GS} =-2.5V, I _D =-0.8A		650	780	
		V _{GS} =-1.8V, I _D =-0.5A		950		
Forward tranconductance ⁽²⁾	g _{FS}	V _{DS} =-10V, I _D =-0.54A		1.2		S
Diode forward voltage	V _{DS}	I _S =-0.5A, V _{GS} = 0V			-1.2	V
Dynamic characteristics ⁽⁴⁾						
Input Capacitance	C _{iss}	V _{DS} =-16V,V _{GS} =0V,f =1MHz		113		pF
Output Capacitance	C _{oss}			15		
Reverse Transfer Capacitance	C _{rss}			9		
Switching Characteristics ^(3,4)						
Turn-on delay time	t _{d(on)}	V _{DS} =-10V,I _D =-200mA, V _{GS} =-4.5V,R _G =10Ω		9		ns
Turn-on rise time	t _r			5.7		
Turn-off delay time	t _{d(off)}			32.6		
Turn-off fall time	t _f			20.3		

N-channel MOSFET ELECTRICAL CHARACTERISTICS($T_a=25^{\circ}\text{C}$ unless otherwise noted)

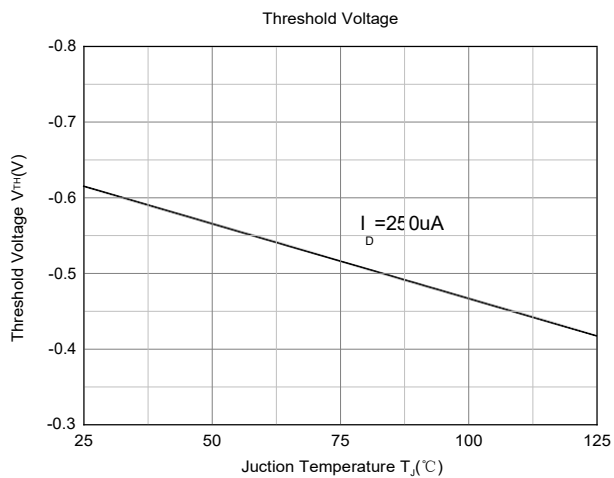
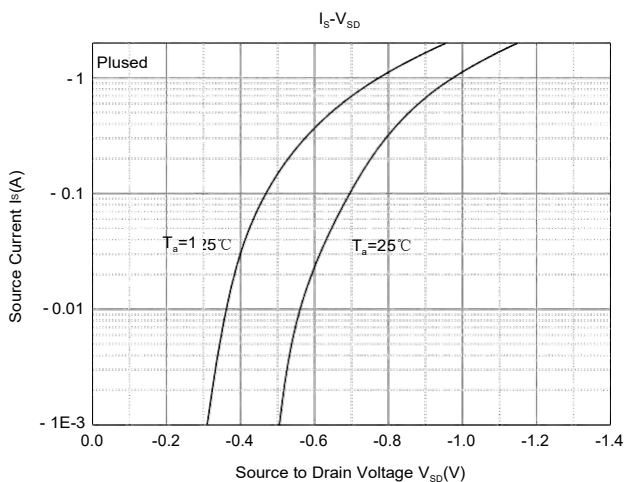
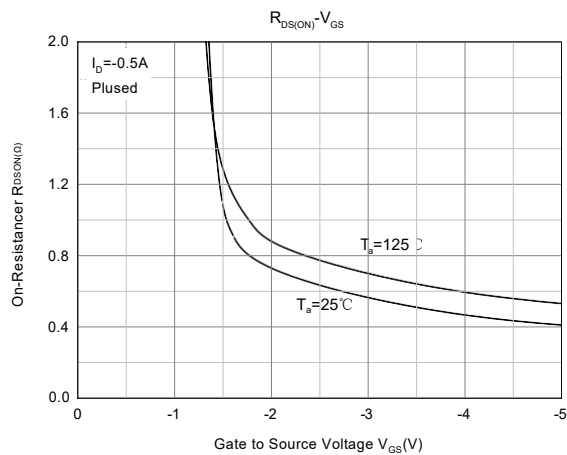
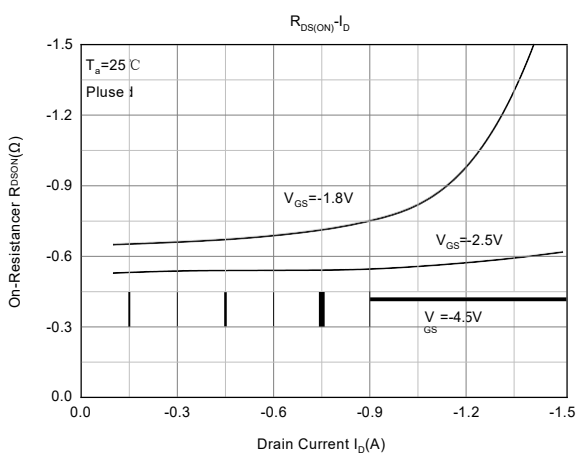
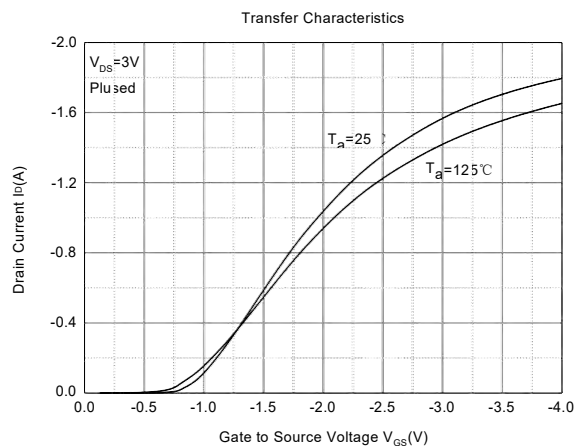
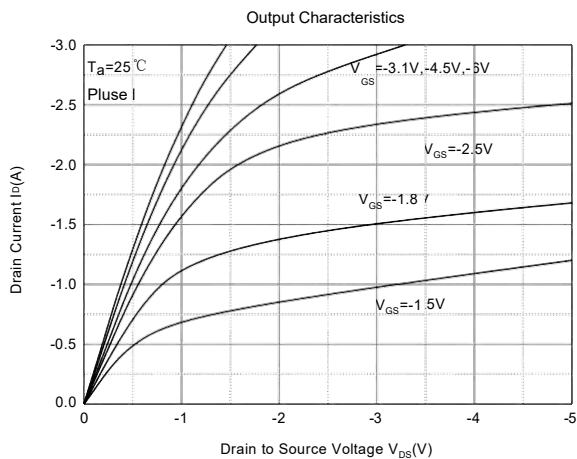
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =250μA	20			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =20V, V _{GS} = 0V			1	μA
Gate-body leakage current	I _{GSS}	V _{GS} =±10V, V _{DS} = 0V			±20	μA
Gate threshold voltage ⁽²⁾	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.35	0.75	1.1	V
Drain-source on-resistance ⁽²⁾	R _{DS(on)}	V _{GS} =4.5V, I _D =650mA		190	380	mΩ
		V _{GS} =2.5V, I _D =550mA		260	450	
		V _{GS} =1.8V, I _D =450mA		390	800	
Forward tranconductance	g _{FS}	V _{DS} =10V, I _D =800mA		1.6		S
Diode Forward voltage ⁽³⁾	V _{DS}	I _S =0.15A, V _{GS} = 0V			1.2	V
Dynamic characteristics ⁽⁴⁾						
Input Capacitance	C _{iss}	V _{DS} =16V, V _{GS} =0V, f=1MHz		79	120	pF
Output Capacitance	C _{oss}			13	20	
Reverse Transfer Capacitance	C _{rss}			9	15	
Switching Characteristics ^(3,4)						
Turn-on delay time	t _{d(on)}	V _{DS} =10V, I _D =500mA, V _{GS} =4.5V, R _G =10Ω		6.7		ns
Turn-on rise time	t _r			4.8		ns
Turn-off delay time	t _{d(off)}			17.3		ns
Turn-off fall time	t _f			7.4		ns

Notes:

1. Surface mounted on FR4 board using the minimum recommended pad size.
2. Pulse Test : Pulse Width=300 μs , Duty Cycle=2%.
3. Switching characteristics are independent of operating junction temperatures.
4. Guaranteed by design, not subject to producing.

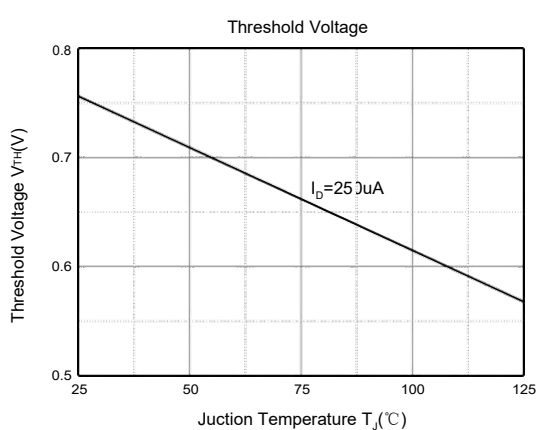
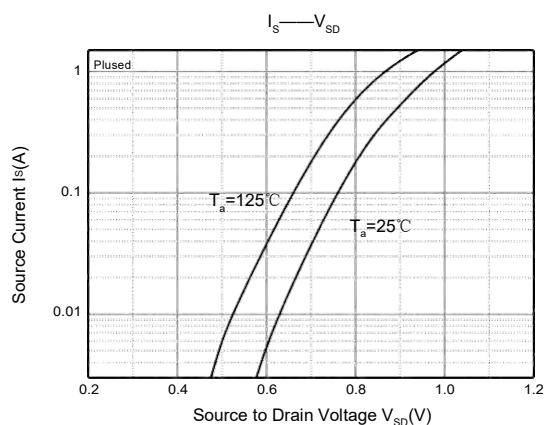
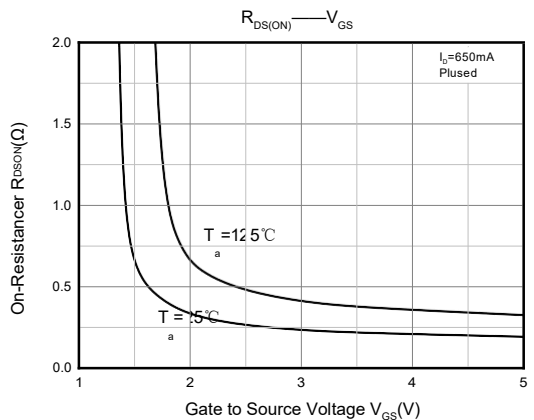
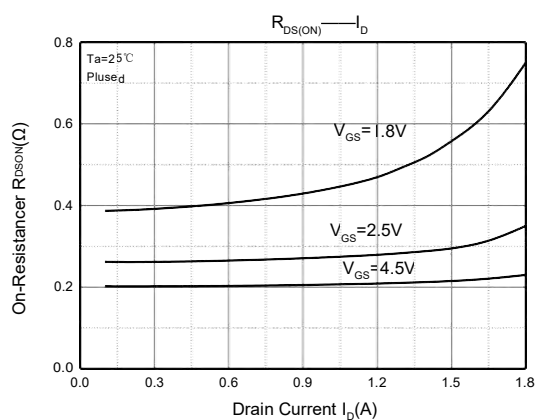
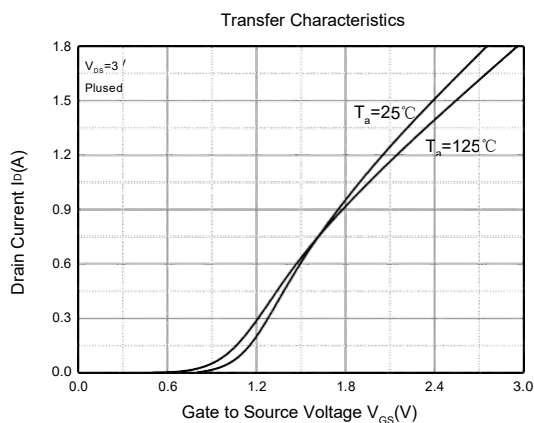
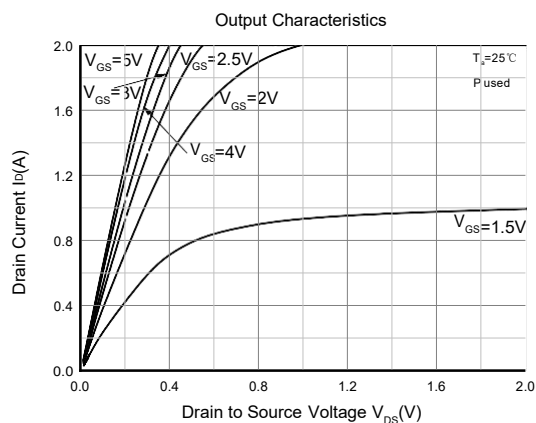
RATING AND CHARACTERISTIC CURVES

P-Channel MOS



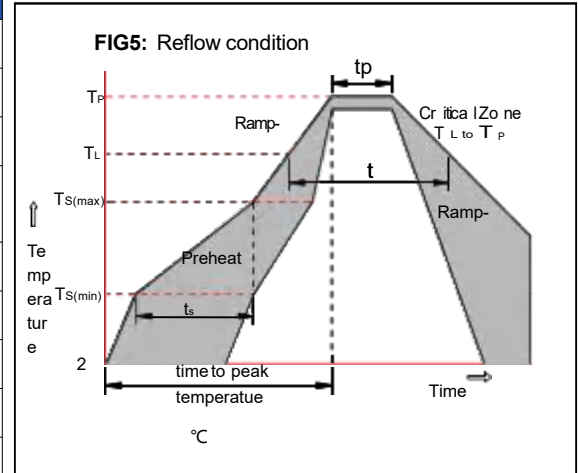
RATING AND CHARACTERISTIC CURVES

N-Channel MOS



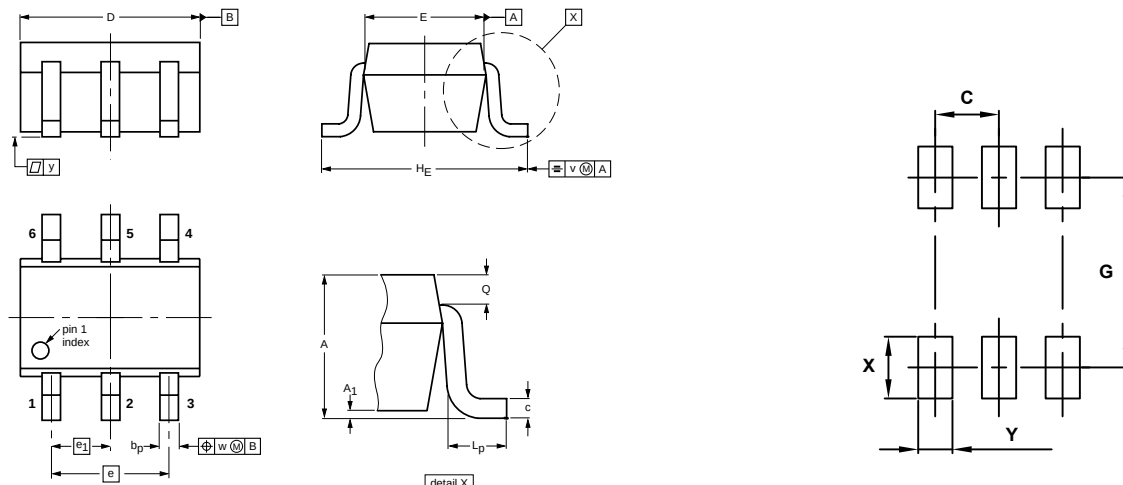
Soldering parameters

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

SOT-363



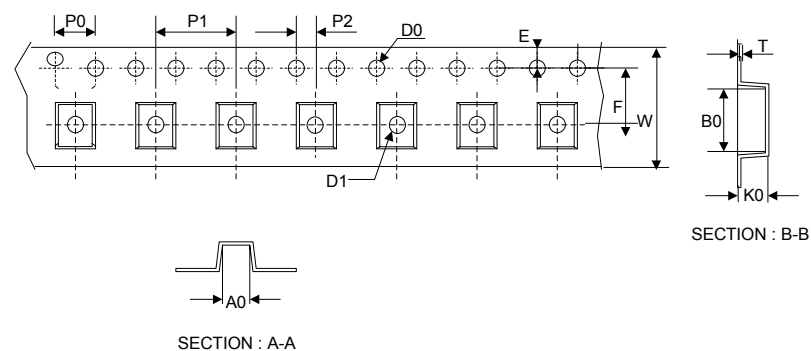
Dimensions	Value (in mm)
C	0.65
G	1.90
X	0.85
Y	0.40

DIMENSIONS (mm are the original dimensions)

UNIT	A	A1 max	b _p	c	D	E	e	e ₁	H _E	L _p	Q	v	w	y
mm	1.1 0.8	0.1	0.30 0.20	0.25 0.10	2.2 1.8	1.35 1.15	1.3	0.65	2.2 2.0	0.45 0.15	0.25 0.15	0.2	0.2	0.1

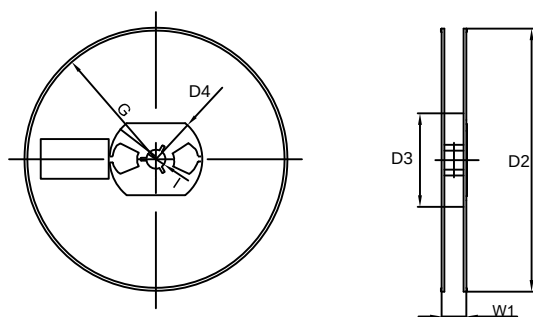
Tape & reel specification

Tape



Symbol	Dimension (mm)
P0	4.00±0.20
P1	4.00±0.20
P2	2.00±0.20
D0	1.55±0.20
D1	1.00±0.20
E	1.55±0.25
F	3.60±0.20
W	8.00±0.20
A0	3.00±0.20
B0	3.00±0.20
K0	1.30±0.20
T	0.20±0.20
D2	177.0±5.0
D3	55Min.
D4	R24.6±2.0
G	R82.0±2.0
I	13.0±2.0
W1	10.20±3.0

7" Reel



Quantity: 3000PCS