

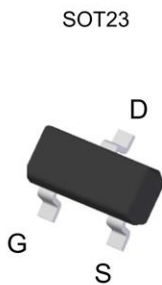
Product Summary

- * On-State Resistance : $R_{DS(on)}=1.5\Omega @V_{GS}=4.5V$
- * Driving Voltage : 2.5V
- * Environmentally Friendly : EU RoHS Compliant, Pb Free

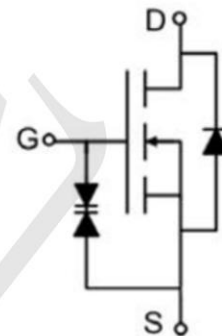
Application

- * Load/Power switch
- * Interfacing, logic switching
- * Battery management for ultra portable electronics

Package and Pin Configuration



Circuit diagram



Absolute Maximum Ratings ($T_A=25^\circ C$ unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNITS
Drain-Source Voltage	V_{DSS}	30	V
Gate-Source Voltage	V_{GSS}	± 20	V
Drain Current (DC)	I_D	0.5	A
Drain Current(Pulse) (*1)	I_{DP}	1	A
Channel Power Dissipation (*2)	P_d	0.4	W
Junction Temperature	T_J	150	$^\circ C$
Storage Temperature	T_{stg}	-55~+150	$^\circ C$

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

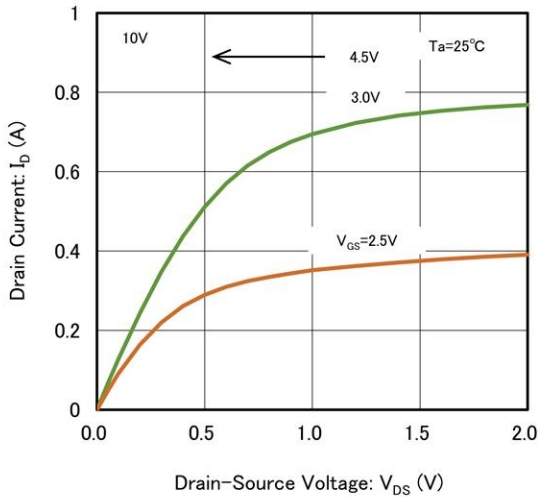
PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNITS
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = 250\mu\text{A}, V_{GS} = 0\text{V}$	30	-	-	V
Drain-Source Leakage Current	I_{DSS}	$V_{DS} = 30\text{V}, V_{GS} = 0\text{V}$	-	-	1	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS} = \pm 15\text{V}, V_{DS} = 0\text{V}$	-	-	± 10	μA
Gate Threshold Voltage	$V_{GS(off)}$	$I_D = 250\mu\text{A}, V_{DS} = V_{GS}$	0.9	1.3	1.7	V
Drain-Source On Resistance	$R_{DS(on)}$	$V_{GS} = 4.5\text{V}, I_D = 100\text{mA}$	-	0.6	1.5	Ω
		$V_{GS} = 2.5\text{V}, I_D = 100\text{mA}$	-	1.5	4	Ω
Input Capacitance	C_{iss}	$V_{DS} = 10\text{V}, V_{GS} = 0\text{V}$ $f = 1\text{MHz}$	-	40	-	pF
Output Capacitance	C_{oss}		-	12	-	pF
Reverse Transfer Capacitance	C_{rss}		-	6	-	pF
Turn-on Delay Time	$t_{d(on)}$	$V_{DD} = 10\text{V}, I_D = 200\text{mA}$ $V_{GS} = 10\text{V}$	-	7	-	ns
Rise Time	t_r		-	5	-	ns
Turn-off Delay Time	$t_{d(off)}$		-	30	-	ns
Fall Time	t_f		-	8	-	ns
Total Gate Charge	Q_g		$V_{DS} = 10\text{V}, I_D = 250\text{mA}$ $V_{GS} = 10\text{V}$	-	0.78	-
Gate-Source Charge	Q_{gs}	-		0.1	-	nC
Gate-Drain Charge	Q_{gd}	-		0.16	-	nC
Diode Forward Voltage	V_{SD}	$I_S = 100\text{mA}, V_{GS} = 0\text{V}$	-	0.7	1.1	V

Notes:

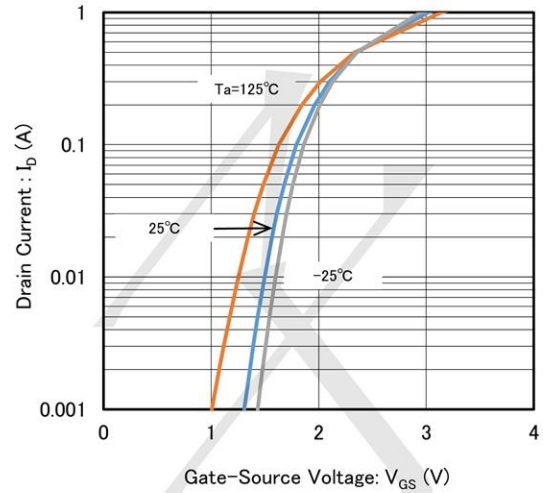
1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, $t \leq 10$ sec.
3. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design

Typical Electrical and Thermal Characteristic Curves

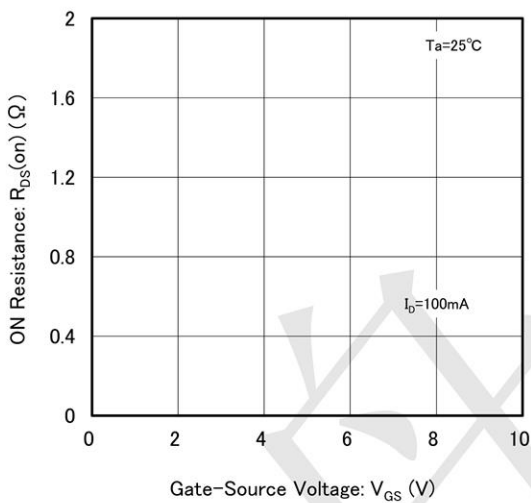
(1) Drain Current vs. Drain-Source Voltage



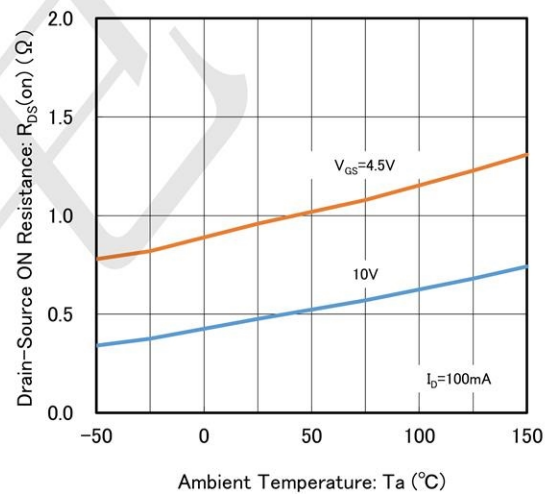
(2) Drain Current vs. Gate-Source Voltage



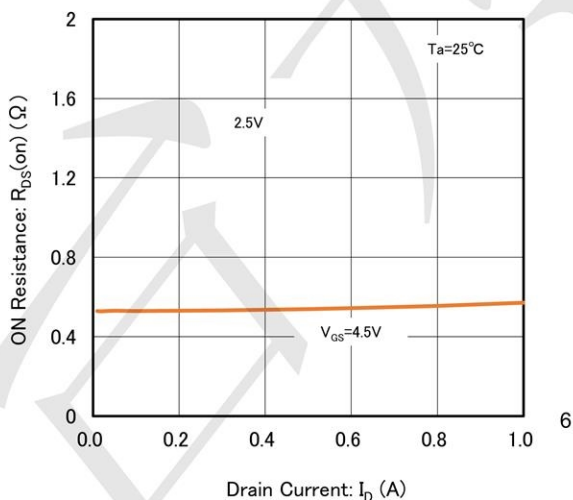
(3) Drain-Source On Resistance vs. Gate-Source Voltage



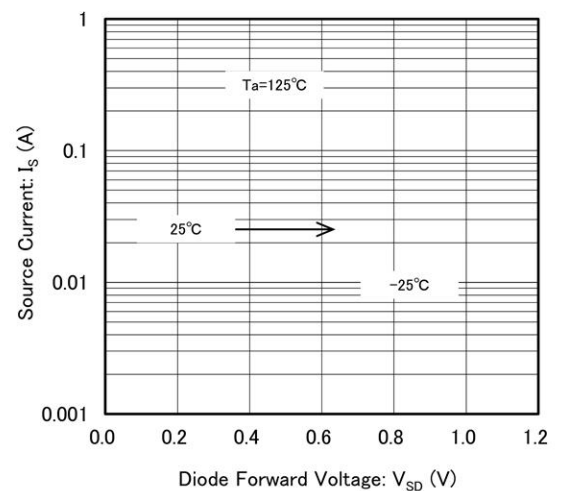
(4) Drain-Source On Resistance vs. Ambient Temperature



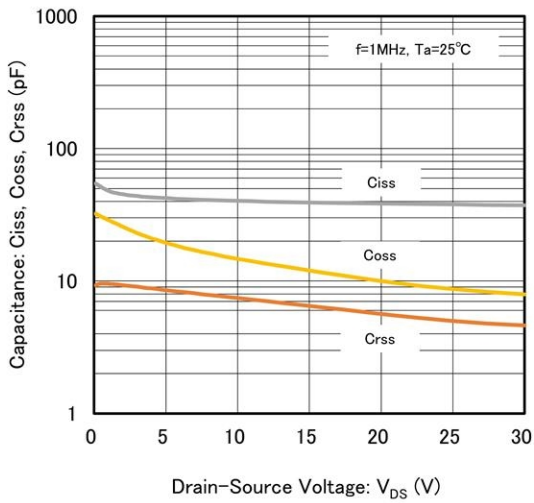
(5) Drain-Source On Resistance vs. Drain Current



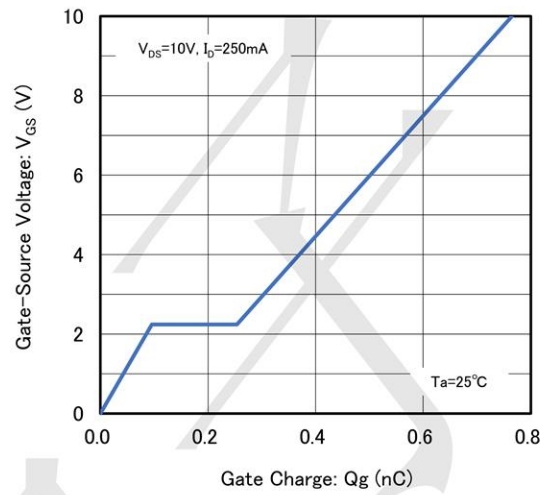
(6) Source Current vs. Diode Forward Voltage



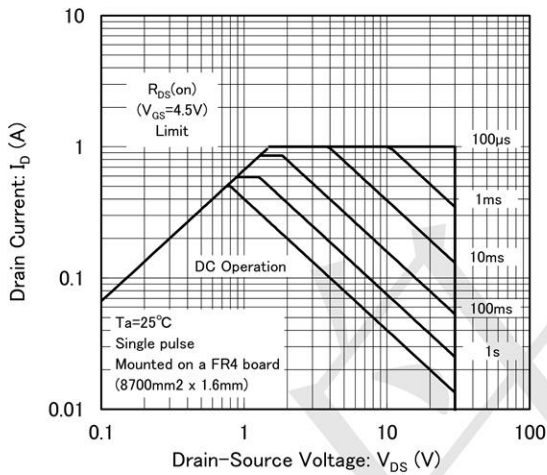
(7) Ciss, Coss, Crss vs. Drain-Source Voltage



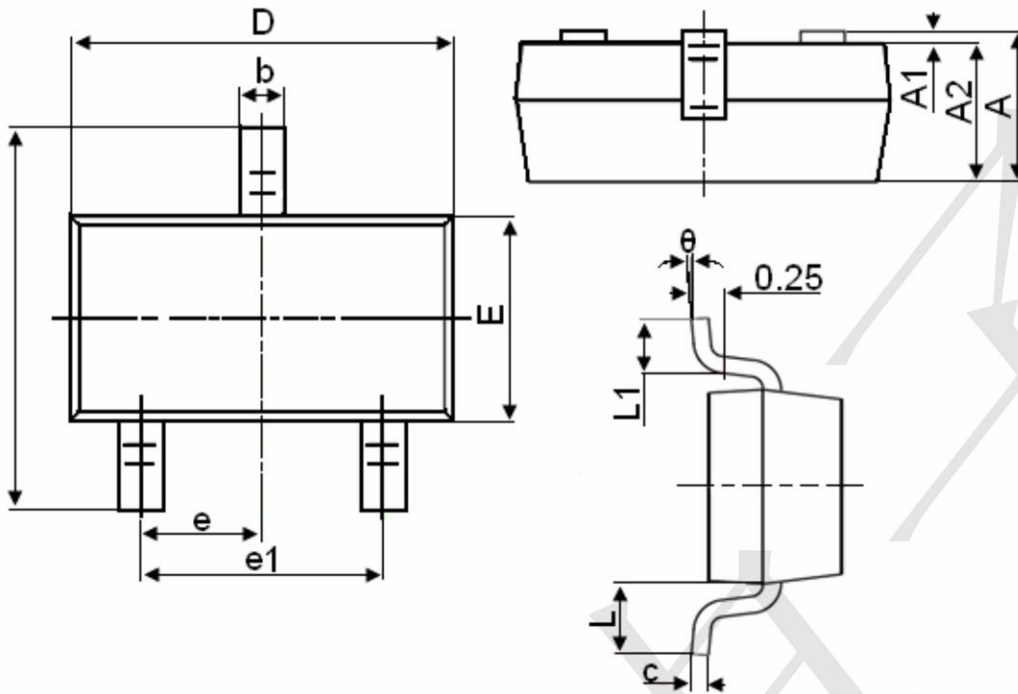
(8) Gate-Source Voltage vs. Gate Charge



(9) Area of Safe Operation



Package Outline Dimensions (SOT-23)



Symbol	Dimensions in Millimeters	
	MIN.	MAX.
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
θ	0°	8°

Notes

1. All dimensions are in millimeters.
2. Tolerance $\pm 0.10\text{mm}$ (4 mil) unless otherwise specified
3. Package body sizes exclude mold flash and gate burrs. Mold flash at the non-lead sides should be less than 5 mils.