SK302P

P-Channel Enhancement Mode MOSFET

RDS(ON) ≦ 1.2 Ω @ VGS = - 4.5 V

RDS(ON) ≦ 1.5 Ω @ VGS = - 2.5 V

BV ≧ -20 V P_{tot} ≦ 0.83 W I_D ≦ -0.67 A

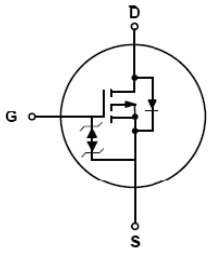
BV_{DSS}	$R_{DS(ON)}$	I_D
-20V	850mΩ	-0.67A

Features

- Surface-mounted package
- Extremely low threshold voltage
- Advanced trench cell design
- ESD protected

Applications

- Portable appliances



SOT-23

1：Gate 2：Source 3：Drain

Limiting Values

Symbol	Parameter	Conditions	Min	Max	Unit
V_{DS}	Drain-Source Voltage	T_A = 25 ℃	-	-20	V
V_{GS}	Gate-Source Voltage	T_A = 25 ℃	-	±10	V
I_D*	Drain Current	T_A = 25 ℃, V_{GS} = -4.5 V	-	-0.67	A
I_{DM}*,**	Pulsed Drain Current	T_A = 25 ℃, V_{GS} = -4.5 V	-	-2.6	A
P_{tot}*	Total Power Dissipation	T_A = 25 ℃	-	0.83	W
		T_A = 100 ℃	-	0.33	
T_{stg}	Storage Temperature		- 55	150	℃
T_J	Junction Temperature		-	150	℃
I_S*	Diode Forward Current	T_A = 25 ℃	-	-2.6	A
$R_{\theta JA}$*	Thermal Resistance- Junction to Ambient		-	150	℃ / W

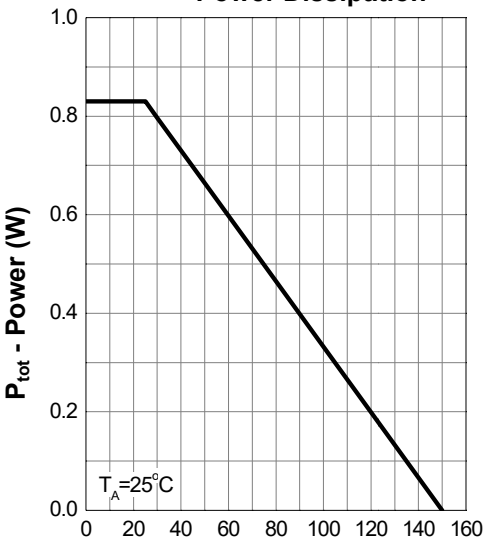
Notes：* Surface Mounted on 1 in^2 pad area, t ≤ 10 sec ** Pulse width ≤ 300 μs, duty cycle ≤ 2 %

Electrical Characteristics (Ta = 25a = 25 °C Unless Otherwise Noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS} = 0 V, I_{DS} = -250 μA	-20	_	_	V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_{DS} = -250 μA	-0.3	-0.65	-1.0	V
I_{DSS}	Drain Leakage Current	V_{DS} = -20 V, V_{GS} = 0 V	-	-	-1	μA
		T_J = 85 ℃	-	-	-30	μA
I_{GSS}	Gate Leakage Current	V_{GS} = ± 8 V, V_{DS} = 0 V	-	-	± 10	μA
$R_{DS(ON)}$[a]	On-State Resistance	V_{GS} = -4.5 V, I_{DS} = -0.5 A	-	0.85	1.2	Ω
		V_{GS} = -2.5 V, I_{DS} = -0.2 A	-	1.05	1.5	
		V_{GS} = -1.5V , I_{DS} = -0.04A	-	1.5	-	
		V_{GS} = -1.2V , I_{DS} = -0.01A	-	2	-	
Diode Characteristics						
V_{SD}[a]	Diode Forward Voltage	I_{SD} = -0.5 A, V_{GS} = 0 V	-	-	1.3	V
t_{rr}	Reverse Recovery Time	I_{SD} = -0.5 A, dI_{SD} / dt = 100 A / μs	-	70	-	ns
Q_{rr}	Reverse Recovery Charge		-	68	-	nC
Dynamic Characteristics[b]						
C_{iss}	Input Capacitance	V_{GS} = 0 V, V_{DS} = -10 V Frequency = 1 MHz	-	87	-	pF
C_{oss}	Output Capacitance		-	15	-	
C_{rss}	Reverse Transfer Capacitance		-	8.2	-	
t_d(on)	Turn-on Delay Time	V_{DS} = -30 V, V_{GEN} = -10 V, R_G = 25 Ω, R_L = 60 Ω, I_{DS} = -0.67 A	-	5.6	-	ns
t_r	Turn-on Rise Time		-	5.3	-	
t_d(off)	Turn-off Delay Time		-	30	-	
t_f	Turn-off Fall Time		-	21	-	
Q_g	Total Gate Charge	V_{GS} = -4.5 V, V_{DS} = -10 V, I_{DS} = -0.67 A	-	1.8	-	pC
Q_{gs}	Gate-Source Charge		-	0.82	-	
Q_{gd}	Gate-Drain Charge		-	0.59	-	

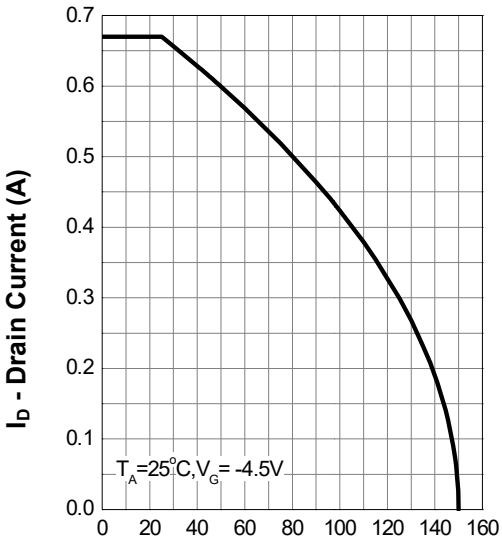
Notes：a : Pulse test ; pulse width ≤ 300 μs, duty cycle ≤ 2 %　　b : Guaranteed by design, not subject to production testing

Power Dissipation



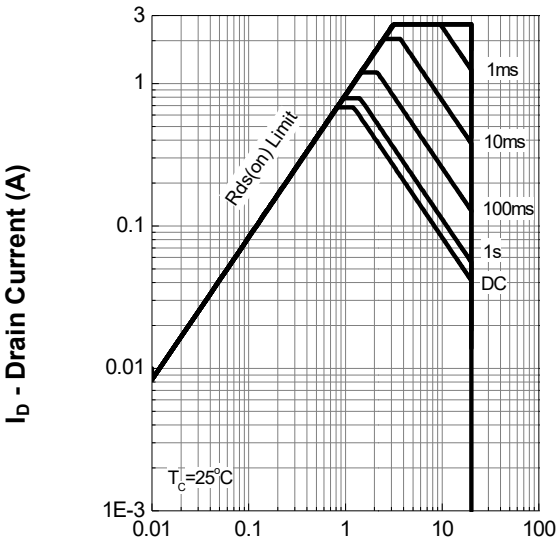
T_j - Junction Temperature (° C)

Drain Current



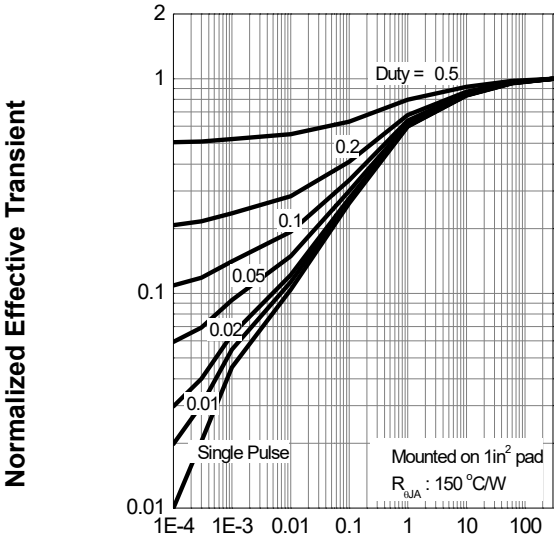
T_j - Junction Temperature (° C)

Safe Operation Area



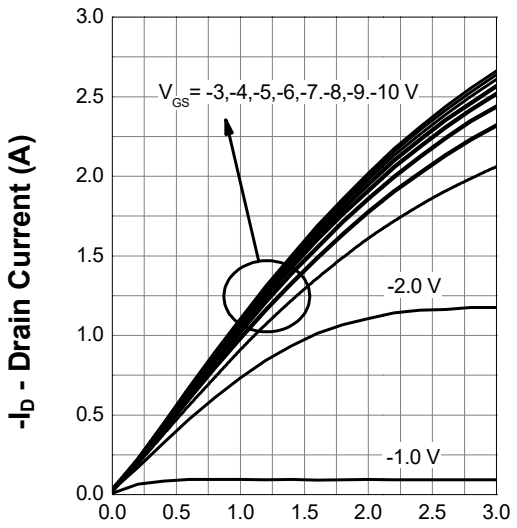
$-V_{DS}$ - Drain-Source Voltage (V)

Thermal Transient Impedance



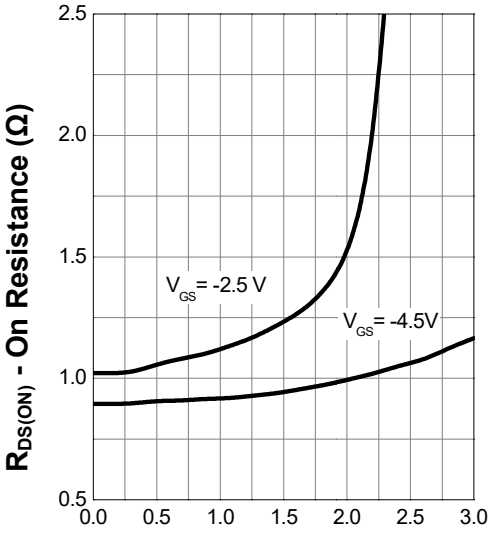
Square Wave Pulse Duration (sec)

Output Characteristics



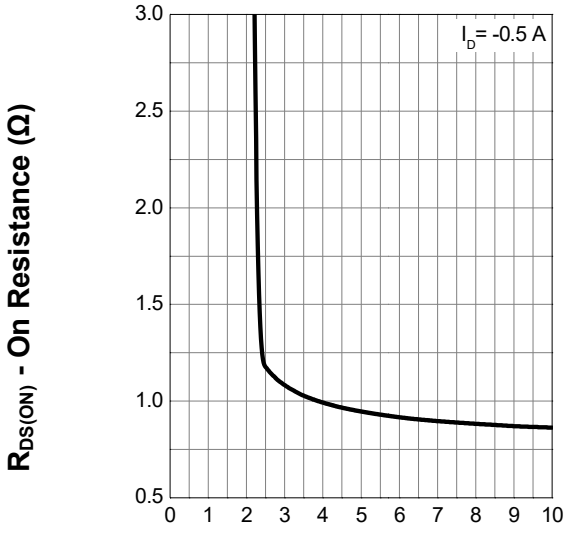
-V_{DS} - Drain-Source Voltage (V)

Drain-Source On Resistance



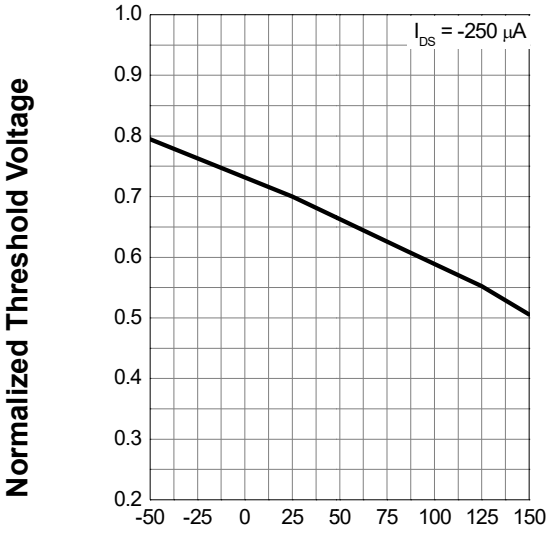
-I_D - Drain Current (A)

Transfer Characteristics



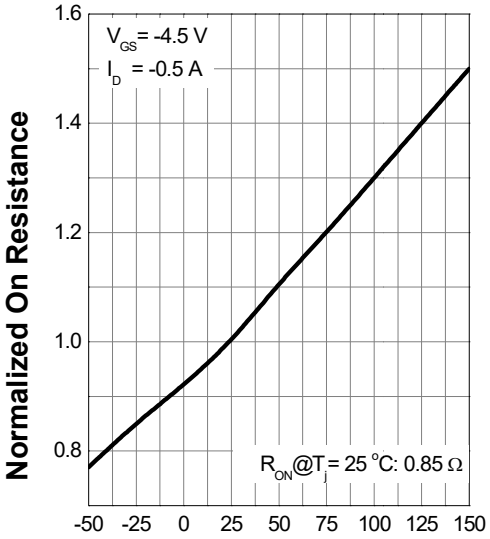
-V_{GS} - Gate-Source Voltage (V)

Gate Threshold Voltage



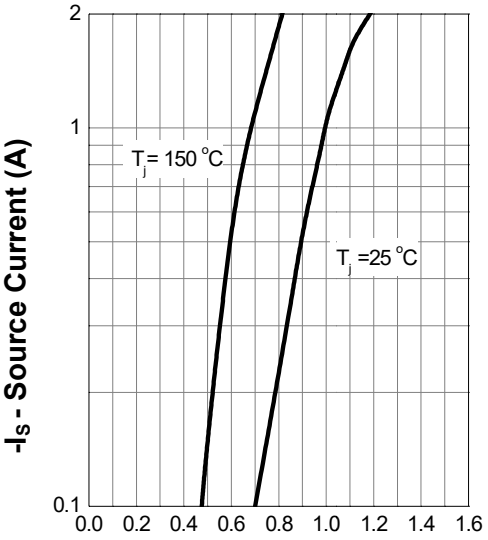
T_j - Junction Temperature (°C)

Drain-Source On Resistance



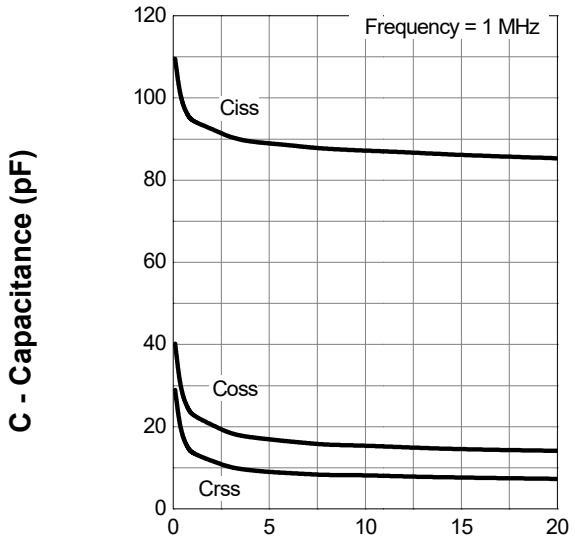
T_j - Junction Temperature (°C)

Source-Drain Diode Forward



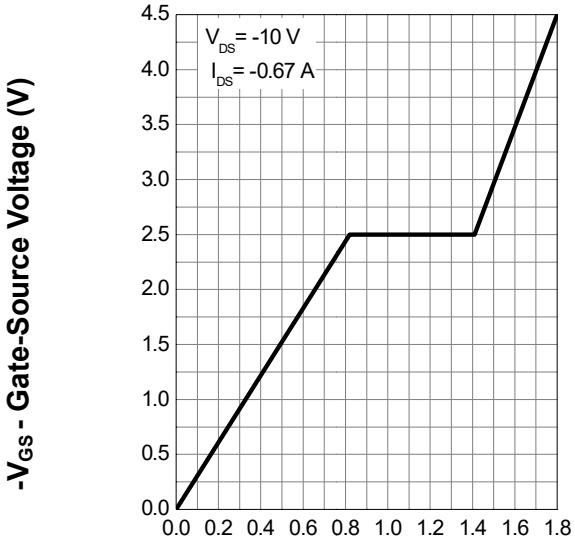
$-V_{SD}$ - Source-Drain Voltage (V)

Capacitance



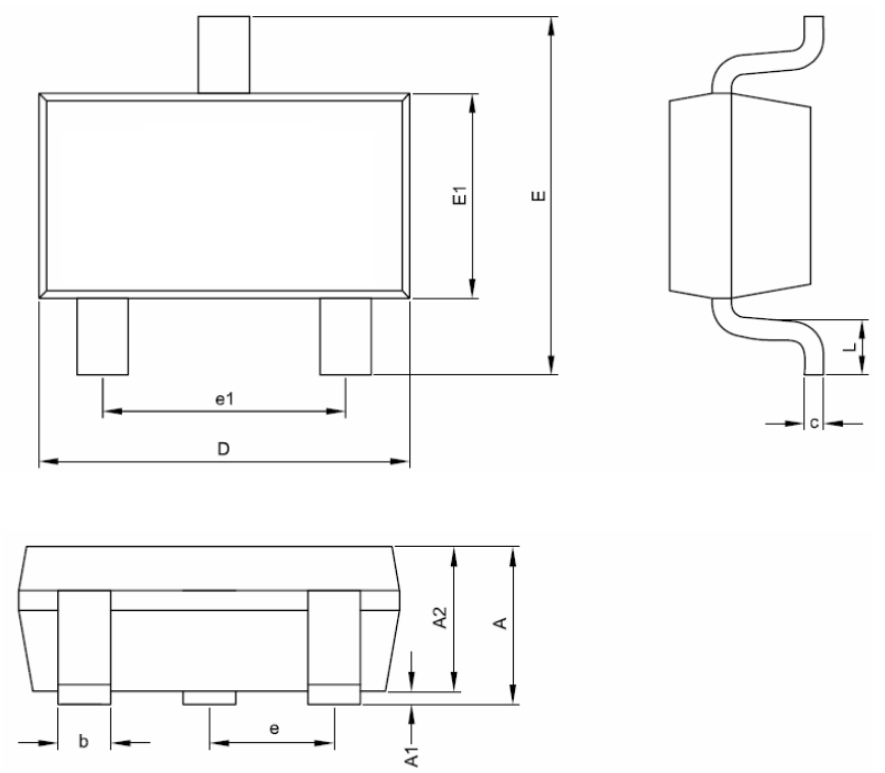
$-V_{DS}$ - Drain-Source Voltage (V)

Gate Charge



Q_G - Gate Charge (pC)

Package Dimensions SOT-23



Symbol	Dimensions In Millimeters	
	MIN.	MAX.
A	—	1.12
A1	0.00	0.1
A2	0.90	1.02
D	2.90 BSC	
E	2.40 BSC	
E1	1.20	1.40
c	0.08	0.25
b	0.30	0.50
e	0.95 BSC	
e1	1.90 BSC	
L	0.20	0.60