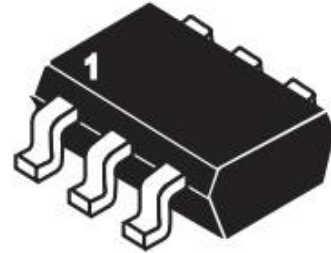


General Description

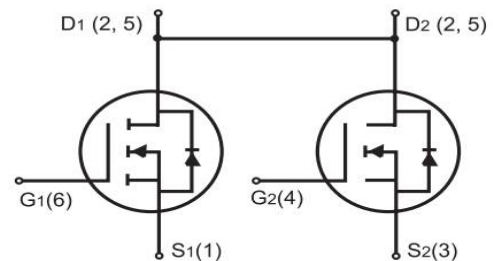
SK8205A uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 2.5V. This device is suitable for use as a Battery protection or in other Switching application.



SOT23-6

Product Summary

V_{DS}	20 V
I_D (at $V_{GS}=4.5V$)	6.0A
$R_{DS(ON)}$ (at $V_{GS} = 4.5V$)	20m Ω Typ
$R_{DS(ON)}$ (at $V_{GS} = 2.5V$)	27m Ω Typ



Absolute Maximum Ratings $T_A=25^\circ C$ unless otherwise noted

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 12	V
Drain Current-Continuous @ $T_J=25^\circ C$	I_D	6	A
Pulsed ^b	I_{DM}	20	A
Drain-Source Diode Forward Current ^a	I_S	2.5	A
Maximum Power Dissipation ^a	P_D	1.5	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 To 150	$^\circ C$

Thermal Characteristic

Parameter	Symbol	Limit	Unit
Thermal Resistance, Junction-to-Ambient ^a	$R_{\theta JA}$	83	$^\circ C/W$

Electrical Characteristics (TA=25°C unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ ^c	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{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}	$V_{GS}=\pm 12V, V_{DS}=0V$	-	-	± 100	nA
On Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.5	0.7	1.2	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=4.5V, I_D=4.5A$	-	20	29	m Ω
		$V_{GS}=2.5V, I_D=3.5A$	-	27	34	m Ω
Forward Transconductance	g_{FS}	$V_{DS}=5V, I_D=7A$	-	17.7	-	S
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS}=8V,$ $V_{GS}=0V,$ $F=1.0MHz$	-	802	-	pF
Output Capacitance	C_{oss}		-	153	-	pF
Reverse Transfer Capacitance	C_{rss}		-	122	-	pF
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=10V,$ $I_D=1A$ $V_{GS}=4.5V,$ $R_{GEN}=10\Omega,$ $R_L=10\Omega$	-	18	-	nS
Turn-on Rise Time	t_r		-	5	-	nS
Turn-Off Delay Time	$t_{d(off)}$		-	43.8	-	nS
Turn-Off Fall Time	t_f		-	20	-	nS
Total Gate Charge	Q_g	$V_{DS}=10V,$ $I_D=4A,$ $V_{GS}=4.5V$	-	10.5	-	nC
Gate-Source Charge	Q_{gs}		-	2	-	nC
Gate-Drain Charge	Q_{gd}		-	2.5	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=1.7A$	-	-	1.2	V

Notes:

- Surface Mounted on FR4 Board ,T<10 sec ;
- Pulse Test: Pulse Width $\leq 300 \mu s$, Duty Cycle $\leq 2\%$.
- Guaranteed by Design, not subject to production testing.

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

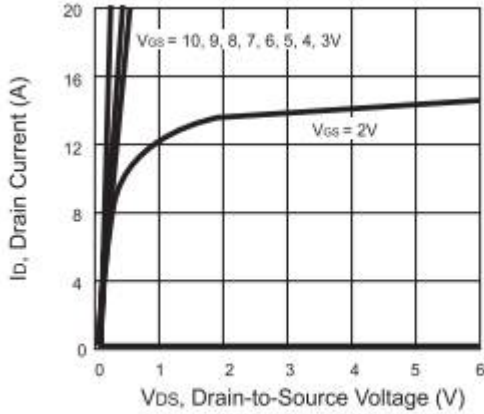


Figure 1. Output Characteristics

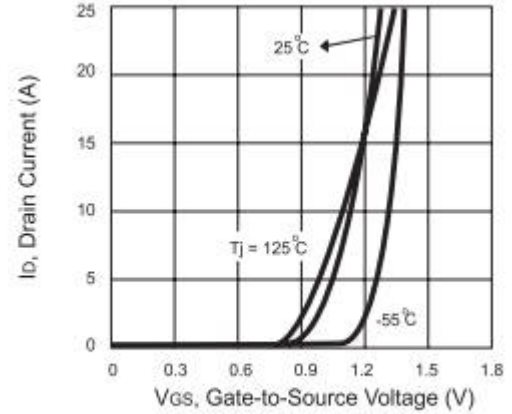


Figure 2. Transfer Characteristics

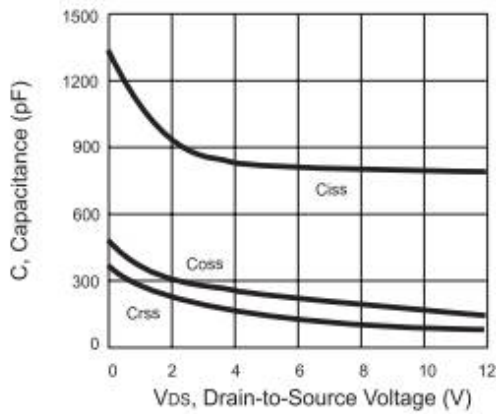


Figure 3. Capacitance

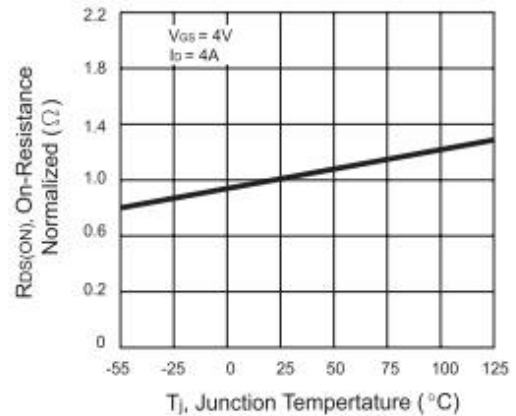


Figure 4. On-Resistance Variation with Temperature

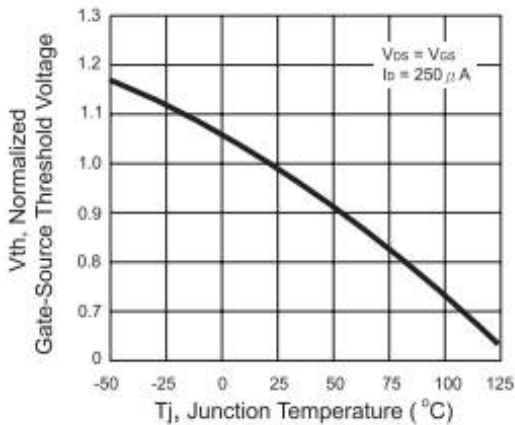


Figure 5. Gate Threshold Variation with Temperature

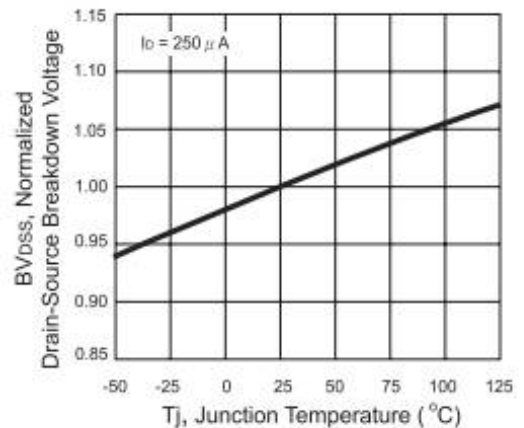


Figure 6. Breakdown Voltage Variation with Temperature

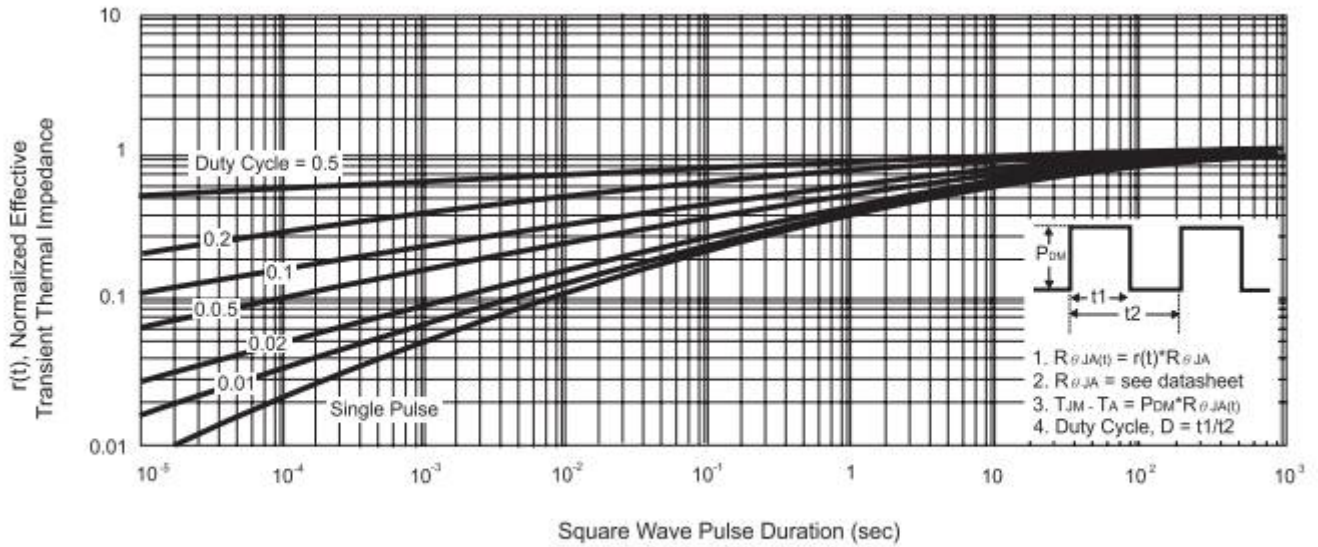
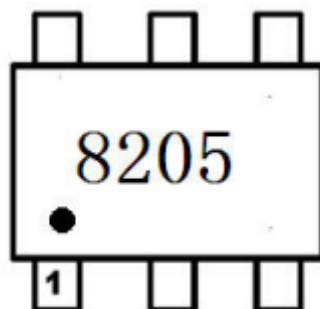


Figure 13. Normalized Thermal Transient Impedance Curve

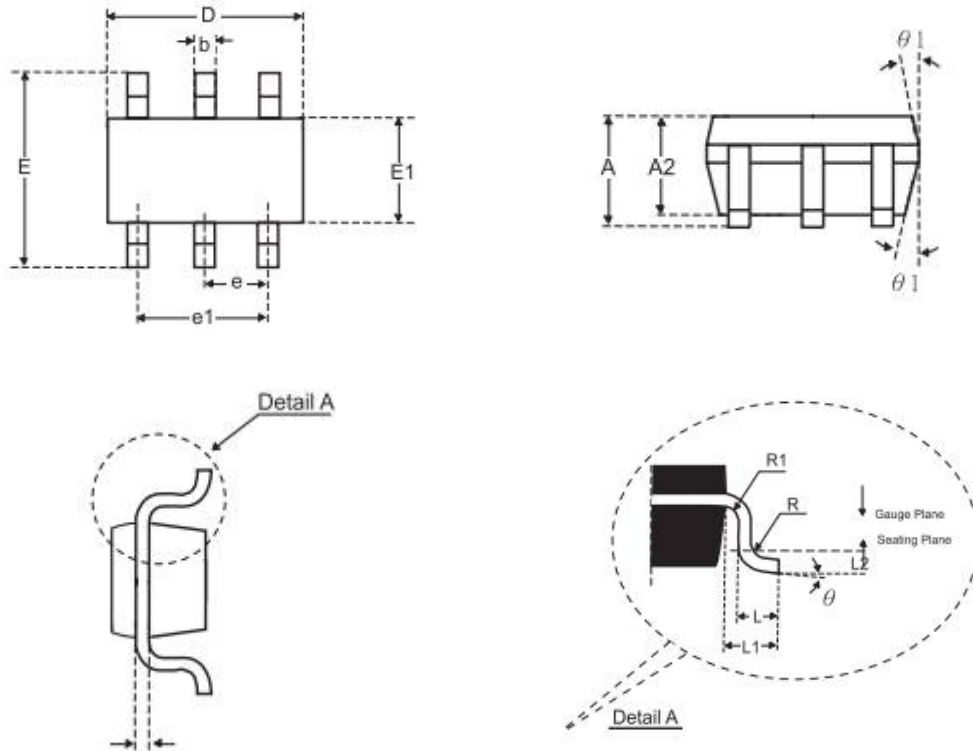
MARKING DESCRIPTION

SOT23-6



Package Outline Dimensions

SOT23-6



SYMBOLS	MILLIMETERS		
	Min.	Nom.	Max.
A	-	-	1.45
A2	0.90	0.15	1.30
b	0.30	-	0.50
c	0.08	-	0.22
D	2.70	2.90	3.10
E	2.50	2.80	3.10
E1	1.50	1.60	1.70
e	0.95 BSC		
e1	1.90 BSC		
L	0.30	0.45	0.60
L1	0.60 BSC		
L2	0.20 BSC		
R	0.10	-	-
R1	0.10	-	0.25
θ	0°	4°	8°
θ_1	0°	10°	15°

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