

RoHS Compliant Product
A suffix of "-C" specifies halogen and lead-free

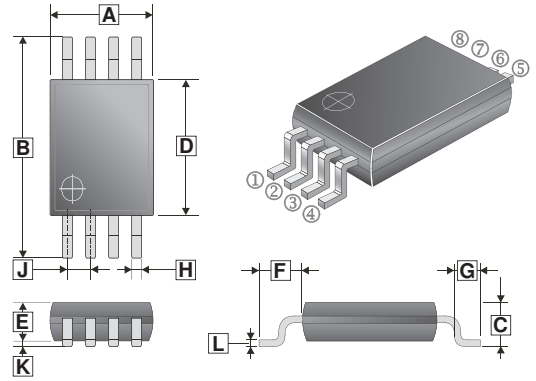
DESCRIPTION

The SGT8820J uses advanced trench technology to provide excellent $R_{DS(ON)}$ and low gate charge. It is ESD protected. This device is suitable for use as a uni-directional or bi-directional load switch, facilitated by its common-drain configuration.

MARKING



TSSOP-8



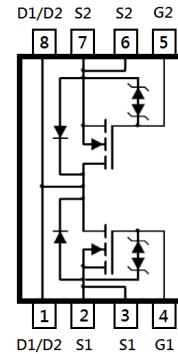
PACKAGE INFORMATION

Package	MPQ	Leader Size
TSSOP-8	3K	13 inch

REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.80	3.10	G	0.45	0.75
B	6.20	6.60	H	0.19	0.30
C	1.00	1.20	J	0.65 REF.	
D	4.30	4.50	K	0.05	0.15
E	-	1.15	L	0.127 REF.	
F	0.90	1.10			

ORDER INFORMATION

Part Number	Type
SGT8820J	Lead (Pb)-free
SGT8820J-C	Lead (Pb)-free and Halogen-free



ABSOLUTE MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current	I_D	7	A
Pulsed Drain Current ¹	I_{DM}	30	A
Lead Temperature for Soldering Purposes (1/8" from case for 10s)	T_L	260	°C
Operating Junction & Storage Temperature Range	T_J, T_{STG}	150, -55~150	
Thermal Resistance Ratings			
Thermal Resistance Junction-Ambient	$R_{\theta JA}$	125	°C/W

ELECTRICAL CHARACTERISTICS ($T_A=25^\circ C$ unless otherwise specified)

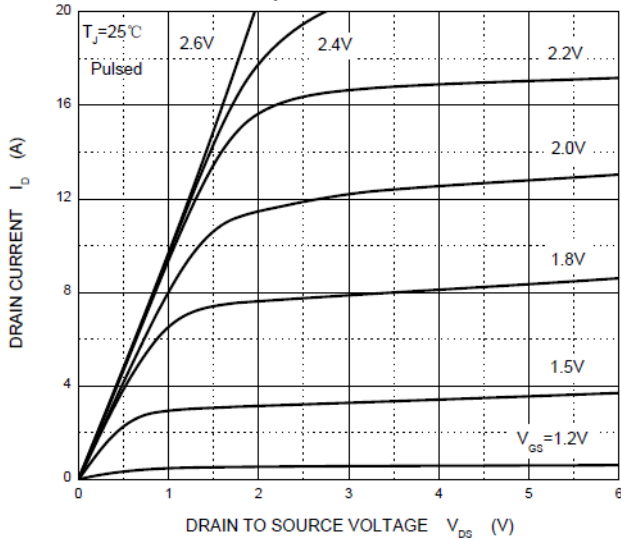
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	20			V	$V_{GS}=0, I_D=250\mu A$
Drain-Source Leakage Current	I_{DSS}	-	-	1	μA	$V_{DS}=16V, V_{GS}=0$
Gate-Body Leakage Current	I_{GSS}	-	-	± 10	μA	$V_{GS}=\pm 10V, V_{DS}=0$
Gate Threshold Voltage ²	$V_{GS(th)}$	0.5	-	1.1	V	$V_{DS}=V_{GS}, I_D=250\mu A$
Drain-Source On-Resistance ²	$R_{DS(ON)}$	-	14	21	m Ω	$V_{GS}=10V, I_D=7A$
		-	16	24		$V_{GS}=4.5V, I_D=6.6A$
		-	18	28		$V_{GS}=3.8V, I_D=6A$
		-	22	32		$V_{GS}=2.5V, I_D=5.5A$
Forward Transconductance ²	g_{fs}	-	9	-	S	$V_{DS}=5V, I_D=7A$
Total Gate Charge	Q_g	-	8	-	nC	$V_{DS}=10V$ $V_{GS}=4.5V$ $I_D=6A$
Gate-Source Charge	Q_{gs}	-	2.5	-		
Gate-Drain Charge	Q_{gd}	-	3	-		
Turn-on Delay Time	$T_{d(on)}$	-	0.5	-	nS	$V_{DD}=10V$ $V_{GS}=5V$ $R_G=3\Omega$ $R_L=1.5\Omega$
Rise Time	T_r	-	1	-		
Turn-off Delay Time	$T_{d(off)}$	-	12	-		
Fall Time	T_f	-	4	-		
Input Capacitance	C_{iss}	-	650	-	pF	$V_{GS}=0$ $V_{DS}=10V$ $f=1MHz$
Output Capacitance	C_{oss}	-	140	-		
Reverse Transfer Capacitance	C_{rss}	-	60	-		
Source-Drain Diode Characteristics						
Forward on Voltage ²	V_{SD}	-	-	1	V	$I_S=1A, V_{GS}=0$

Notes:

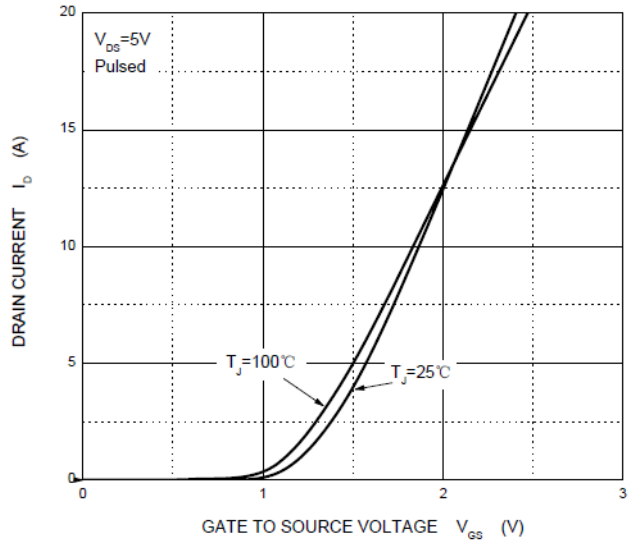
1. Pulse width limited by maximum junction temperature.
2. Pulse Test: Pulse width $\leq 300\mu s$, duty cycle $\leq 0.5\%$.

CHARACTERISTICS CURVE

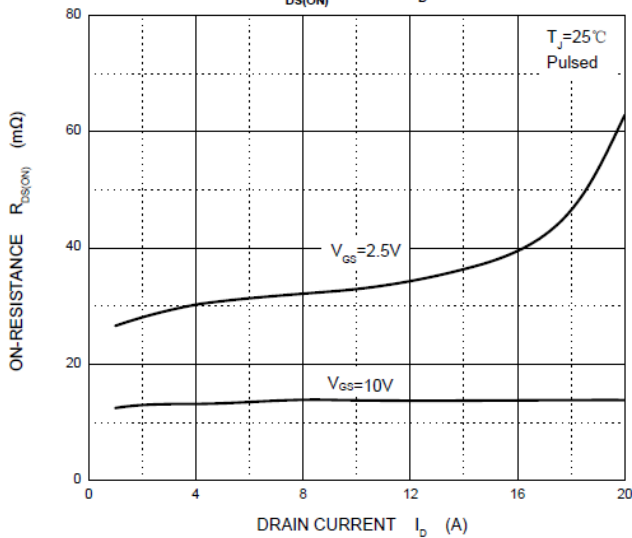
Output Characteristics



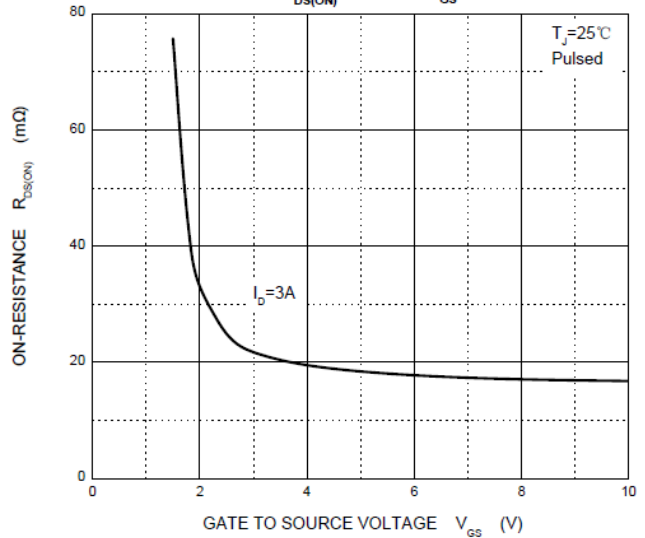
Transfer Characteristics



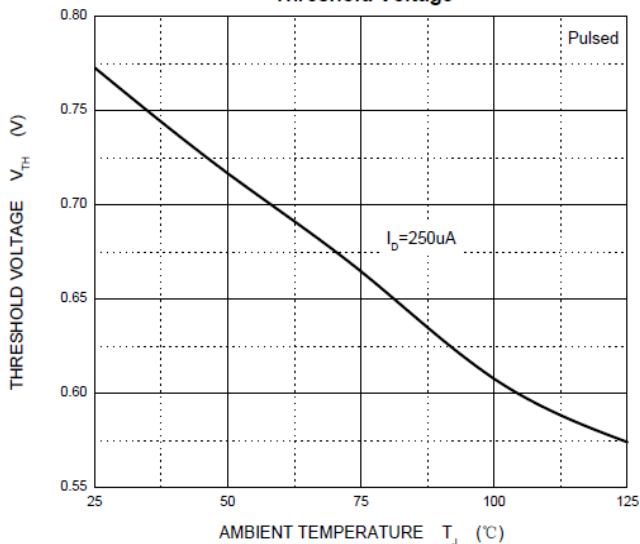
$R_{DS(ON)}$ — I_D



$R_{DS(ON)}$ — V_{GS}



Threshold Voltage



I_S — V_{SD}

