

•General Description

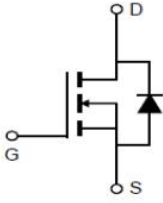
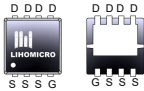
The SGT MOSFET LH042N065 has the low $R_{DS(on)}$, low gate charge, fast switching and excellent avalanche characteristics. This device is suitable for fast charge and lighting.

•Features

- Fast switching
- Low $R_{DS(on)}$ & FOM
- Low Miller Charge

•Application

- LED Lighting
- Power Supplies
- PD Fast Charging

	$V_{DS}=65V$ $R_{DS(ON)}=4.2m\Omega$ $I_D=60A$
■ RoHS COMPLIANT	
 DFN3*3	

•Ordering Information:

Part Number	LH042N065
Package	DFN3*3
Basic Ordering Unit (pcs)	5000
Normal Package Material Ordering Code	LH042N065D3-DFN3*3-TAP
Halogen Free Ordering Code	LH042N065D3-DFN3*3-TAP-HF

•Absolute Maximum Ratings (TC =25°C)

PARAMETER	SYMBOL	Value	UNIT
Drain-Source Breakdown Voltage	BV_{DSS}	65	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current , $T_C = 25^\circ C$	I_D	60	A
Pulsed drain current (TC = 25°C, tp limited by Tjmax) ¹	I_D pulse	135	A
Single Pulse Avalanche Energy ²	E_{AS}	93.6	mJ
Power Dissipation(TC=25°C)	P_D	48	W
Operating Temperature	T_J	-55~+150	°C
Storage Temperature	T_{STG}	-55~+150	°C

●Electronic Characteristics

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS} = 0V, I_D = 250\mu A$	65	--	--	V
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.0	--	2.5	V
Drain-source On Resistance ³	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 20A$	--	3.6	4.2	mΩ
		$V_{GS} = 4.5V, I_D = 15A$	--	5.2	6.8	
Drain-Source Leakage Current	I_{DSS}	$V_{DS} = 60V, V_{GS} = 0V, T_J = 25^\circ C$	--	--	1	μA
		$V_{DS} = 48V, V_{GS} = 0V, T_J = 85^\circ C$	--	--	10	
Gate-Source Leakage Current	I_{GSS}	$V_{GS} = \pm 20, V_{DS} = 0V$	--	--	±100	nA
Input Capacitance	C_{iss}	$V_{GS} = 0V,$ $V_{DS} = 48V$ $f = 1.0MHz$	--	1675	--	pF
Output Capacitance	C_{oss}		--	400	--	
Reverse transfer Capacitance	C_{rss}		--	25	--	
Turn-on delay time	$T_d(on)$	$V_{GS} = 10V,$ $V_{DD} = 30V$ $R_G = 6.0\Omega$	--	12	--	ns
Rise time	T_r		--	20	--	
Turn -Off Delay Time	$T_d(off)$		--	58	--	
Fall time	T_f		--	57	--	
Total Gate Charge	Q_g	$I_D = 30A,$ $V_{DS} = 48V$ $V_{GS} = 10V$	--	46	--	nC
Gate-to-Source Charge	Q_{gs}		--	4.7	--	
Gate-to-Drain Charge	Q_{gd}		--	18	--	
Pulsed Diode Forward Current	I_s	Force Current	--	--	60	A
Diode Forward Voltage	V_{SD}	$T_J = 25^\circ C, I_s = 20A$ $V_{GS} = 0V$	--	--	1.2	V
Reverse Recovery Time	t_{rr}	$I_f = I_s$ $di_F/dt = 100A/\mu s$	--	54	--	ns
Reverse Recovery Charge	Q_{rr}		--	62	--	μC

●Thermal Characteristics

PARAMETER	SYMBOL	MAX	UNIT
Thermal Resistance Junction-case	R_{thJC}	0.8	°C/W
Thermal Resistance Junction-ambient	R_{thJA}	62.5	°C/W

Notes:

- 1.Repetitive Rating: Pulse width limited by maximum junction temperature.
2. L = 0.5mH, $V_{DD} = 40V$, $R_G = 25\Omega$, Starting $T_J = 25^\circ C$
3. Pulse Test : Pulse width $\leq 300\mu s$, Duty cycle $\leq 2\%$

• **Typical Characteristics**

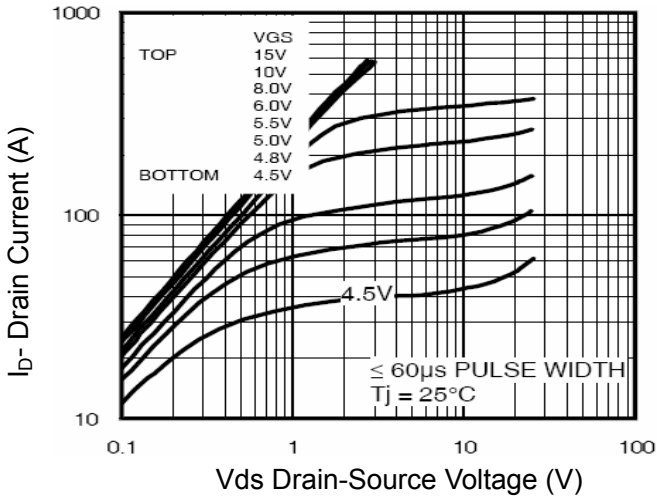


Figure 1 Output Characteristics

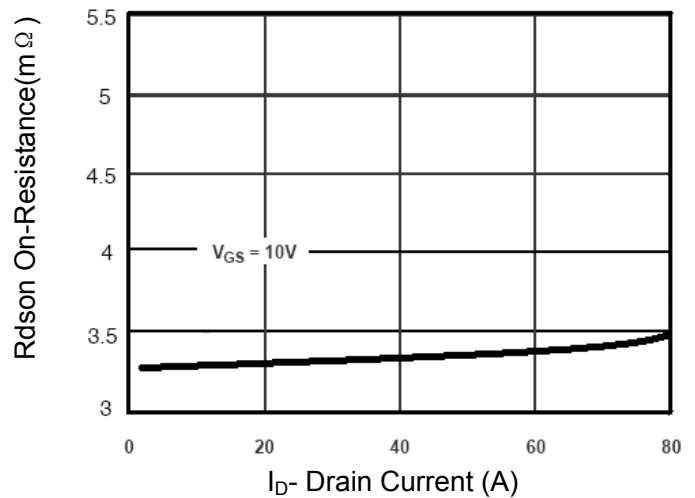


Figure 2 Rdson- Drain Current

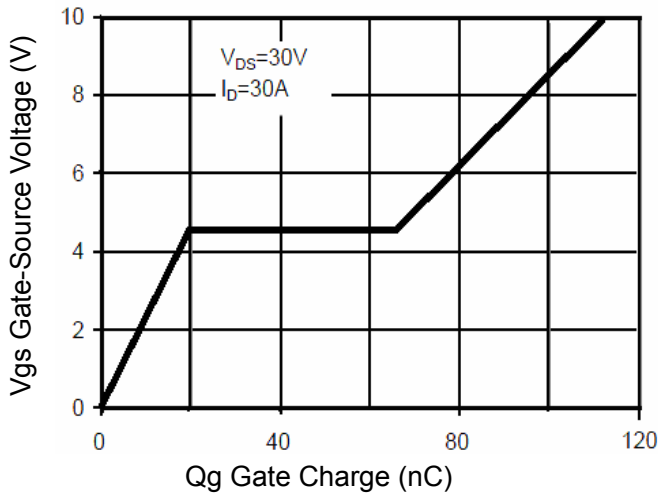


Figure 3 Gate Charge

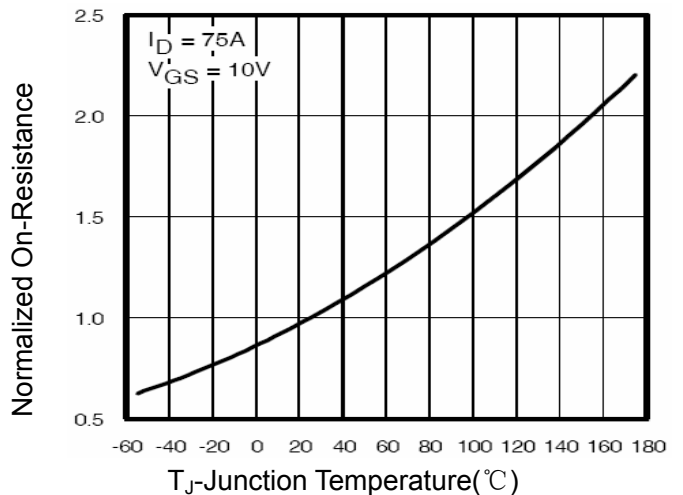


Figure 4 Rdson-Junction Temperature

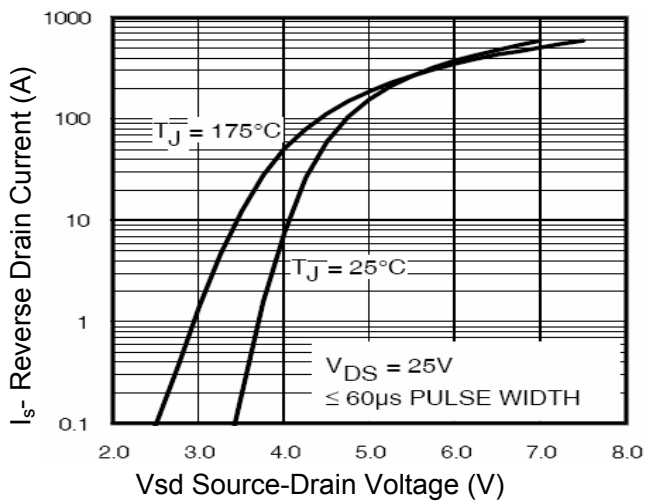


Figure 5 Source- Drain Diode Forward

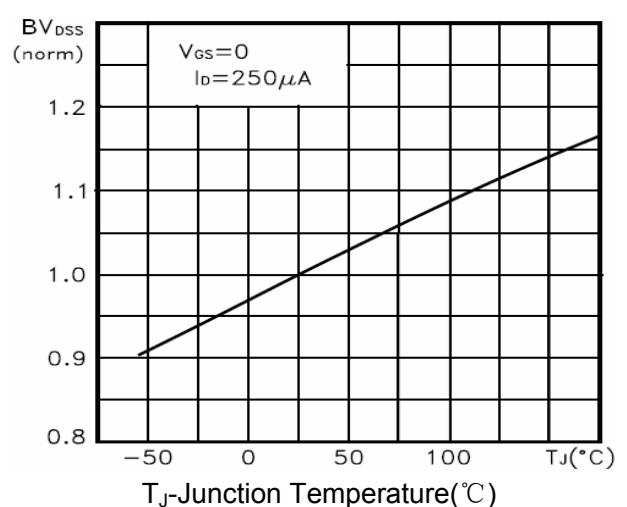


Figure 6 BV_{DSS} vs Junction Temperature

•Typical Characteristics(cont.)

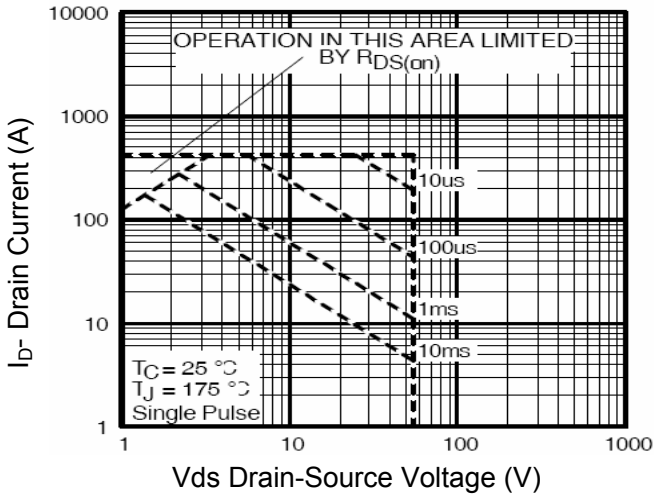


Figure 7 Safe Operation Area

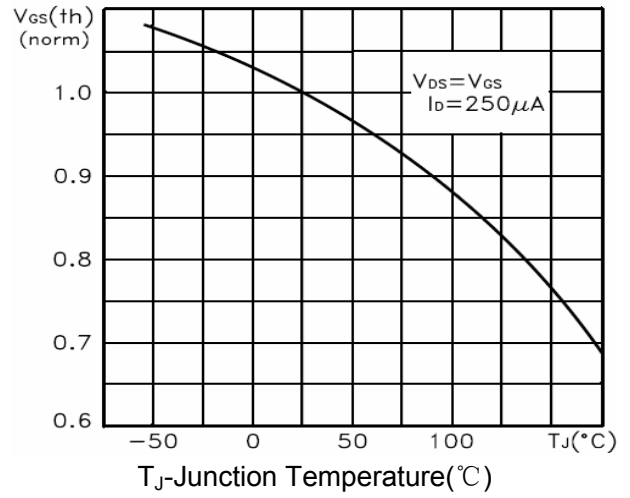


Figure 8 $V_{GS(th)}$ vs Junction Temperature

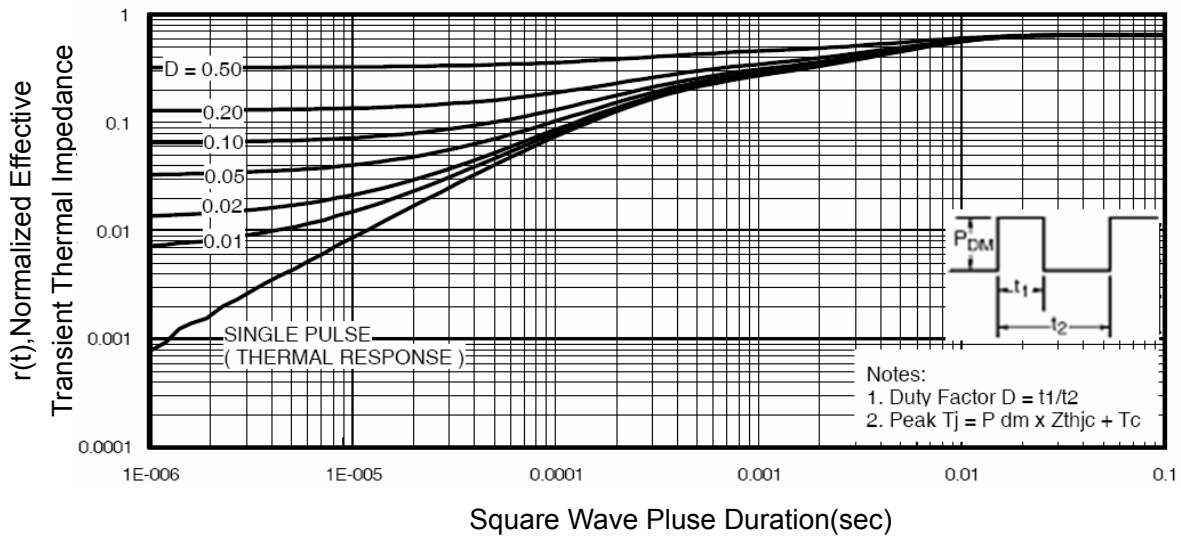


Figure 11 Normalized Maximum Transient Thermal Impedance

• Test Circuits & Waveforms

Fig1.EAS test Circuits

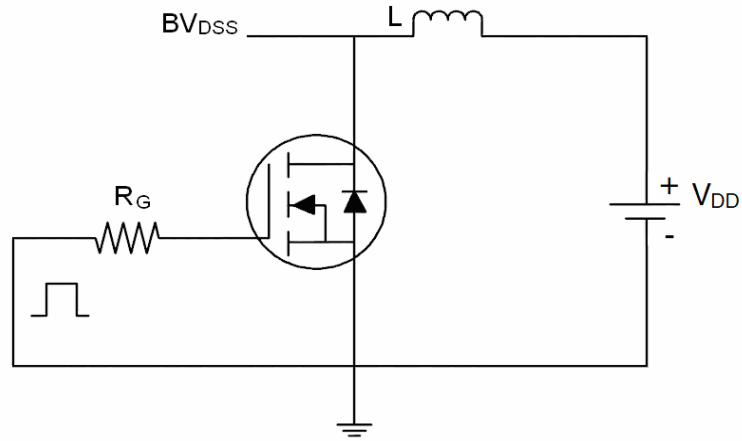


Fig2.Gate charge test Circuit

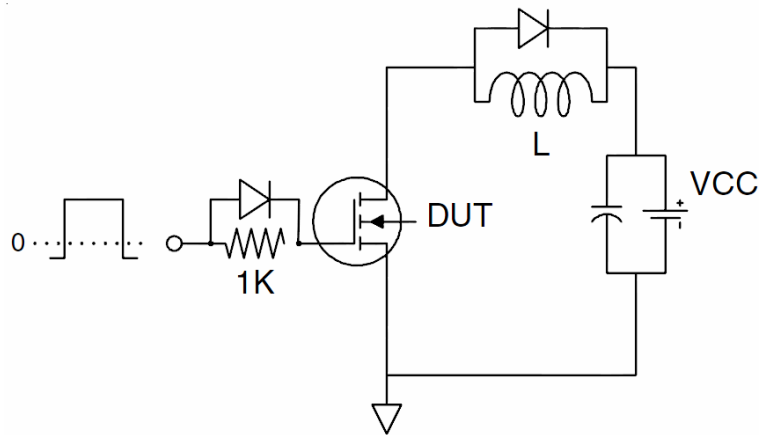
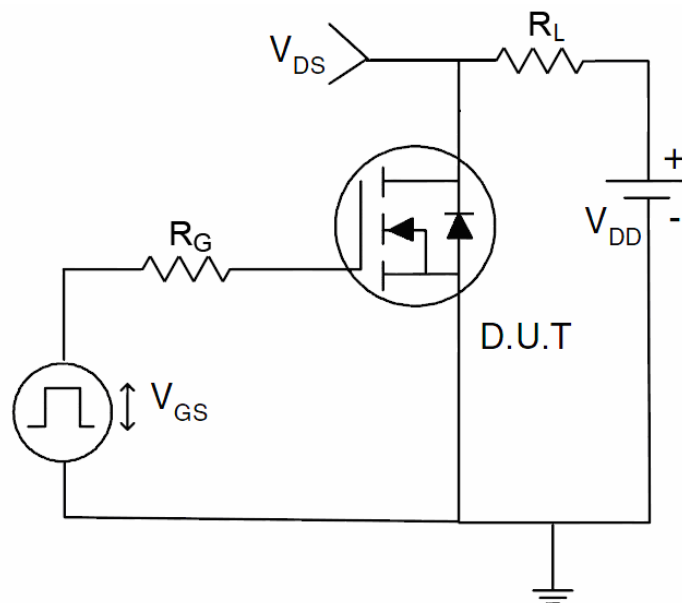


Fig3.Switch Time Test Circuit



•Dimensions (DFN3*3)

Unit: mm

SYMBOL	min	max	SYMBOL	min	max
A	0.68	0.88	e	0.65BSC	
b	0.27	0.47	L1	1.55	1.95
c	0.15	0.35	L2	0.5	0.9
D	3.05	3.25	I	3.10	3.50
D1	2.25	2.65			
E	3.05	3.25			
E1	3.15	3.55			

