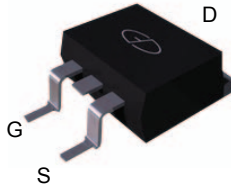
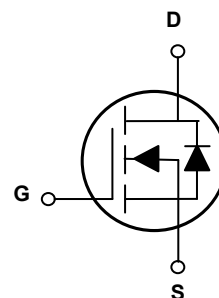


**Main Product Characteristics**

$BV_{DSS}$	100V
$R_{DS(ON)}$	12mΩ
$I_D$	65A



TO-263(D²PAK)



Schematic Diagram

**Features and Benefits**

- Advanced MOSFET process technology
- Ideal for high efficiency switched mode power supplies
- Low on-resistance with low gate charge
- Fast switching and reverse body recovery



**Description**

The GSGT1066 utilizes the latest techniques to achieve high cell density and low on-resistance. These features make this device extremely efficient and reliable for use in high efficiency switch mode power supply and a wide variety of other applications.

**Absolute Maximum Ratings** ( $T_c=25^{\circ}C$  unless otherwise specified)

Parameter	Symbol	Max.	Unit
Drain-Source Voltage	$V_{DS}$	100	V
Gate-Source Voltage	$V_{GS}$	±20	V
Drain Current-Continuous ( $T_c=25^{\circ}C$ )	$I_D$	65	A
Drain Current-Continuous ( $T_c=100^{\circ}C$ )		41	
Drain Current-Pulsed <sup>1</sup>	$I_{DM}$	260	A
Single Pulse Avalanche Energy <sup>2</sup>	$E_{AS}$	125	mJ
Single Pulse Avalanche Current <sup>2</sup>	$I_{AS}$	50	A
Power Dissipation ( $T_c=25^{\circ}C$ )	$P_D$	129	W
Power Dissipation-Derate above 25°C		1.03	
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	62	°C/W
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	0.97	°C/W
Operating Junction Temperature Range	$T_J$	-55 To +150	°C
Storage Temperature Range	$T_{STG}$	-55 To +150	°C

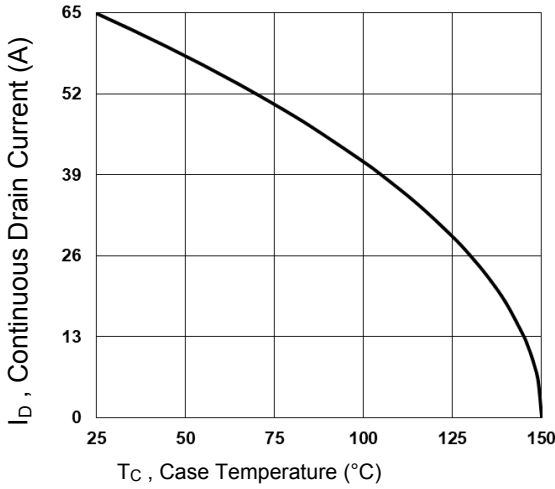
**Electrical Characteristics** ( $T_J=25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
<b>On/Off Characteristics</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V, I_D=250\mu A$	100	-	-	V
Drain-Source Leakage Current	$I_{DSS}$	$V_{DS}=80V, V_{GS}=0V, T_J=25^\circ\text{C}$	-	-	1	$\mu A$
		$V_{DS}=80V, V_{GS}=0V, T_J=85^\circ\text{C}$	-	-	10	
Gate-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	$\pm 100$	nA
Static Drain-Source On-Resistance <sup>3</sup>	$R_{DS(ON)}$	$V_{GS}=10V, I_D=20A$	-	10	12	m $\Omega$
		$V_{GS}=6V, I_D=15A$	-	14	18	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	2.0	3.0	4.0	V
Forward Transconductance	$g_{fs}$	$V_{DS}=10V, I_D=3A$	-	10	-	S
<b>Dynamic and Switching Characteristics</b>						
Total Gate Charge <sup>3,4</sup>	$Q_g$	$V_{DS}=50V, I_D=30A, V_{GS}=10V$	-	15.4	23	nC
Gate-Source Charge <sup>3,4</sup>	$Q_{gs}$		-	3.9	6	
Gate-Drain Charge <sup>3,4</sup>	$Q_{gd}$		-	4.6	7	
Turn-On Delay Time <sup>3,4</sup>	$t_{d(on)}$	$V_{DD}=50V, R_G=6\Omega, V_{GS}=10V, I_D=30A$	-	20	30	nS
Rise Time <sup>3,4</sup>	$t_r$		-	40	60	
Turn-Off Delay Time <sup>3,4</sup>	$t_{d(off)}$		-	57	86	
Fall Time <sup>3,4</sup>	$t_f$		-	35	53	
Input Capacitance	$C_{iss}$	$V_{DS}=50V, V_{GS}=0V, F=1\text{MHz}$	-	1180	1750	pF
Output Capacitance	$C_{oss}$		-	250	375	
Reverse Transfer Capacitance	$C_{rss}$		-	2.2	4.0	
Gate Resistance	$R_g$	$V_{GS}=0V, V_{DS}=0V, F=1\text{MHz}$	-	1.0	-	$\Omega$
<b>Drain-Source Diode Characteristics and Maximum Ratings</b>						
Continuous Source Current	$I_s$	$V_G=V_D=0V, \text{Force Current}$	-	-	65	A
Pulsed Source Current <sup>3</sup>	$I_{SM}$		-	-	130	A
Diode Forward Voltage <sup>3</sup>	$V_{SD}$	$V_{GS}=0V, I_s=1A, T_J=25^\circ\text{C}$	-	-	1	V
Reverse Recovery Time	$t_{rr}$	$V_R=100V, I_s=10A, di/dt=100A/\mu s, T_J=25^\circ\text{C}$	-	165	-	nS
Reverse Recovery Charge	$Q_{rr}$		-	265	-	nC

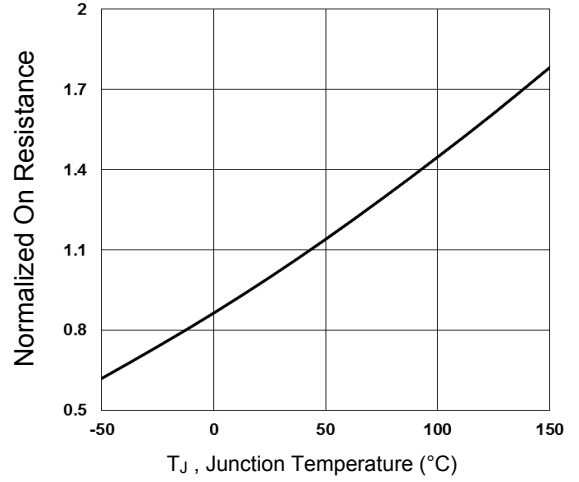
Note:

1. Repetitive rating: Pulsed width limited by maximum junction temperature.
2.  $V_{DD}=50V, V_{GS}=10V, L=0.1\text{mH}, I_{AS}=50A, R_G=25\Omega$ , starting  $T_J=25^\circ\text{C}$ .
3. Pulse test: pulse width  $\leq 300\mu s$ , duty cycle  $\leq 2\%$ .
4. Essentially independent of operation temperature.

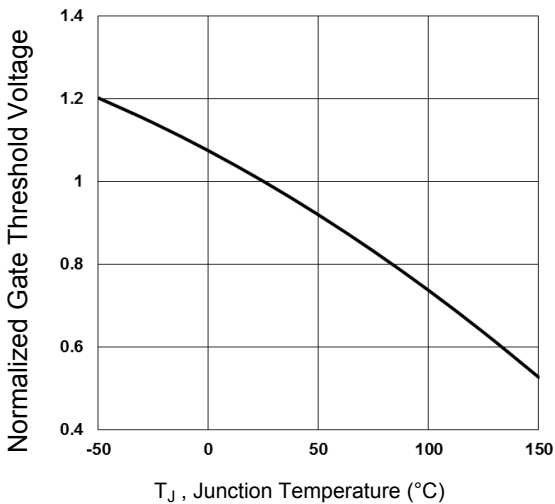
**Typical Electrical and Thermal Characteristic Curves**



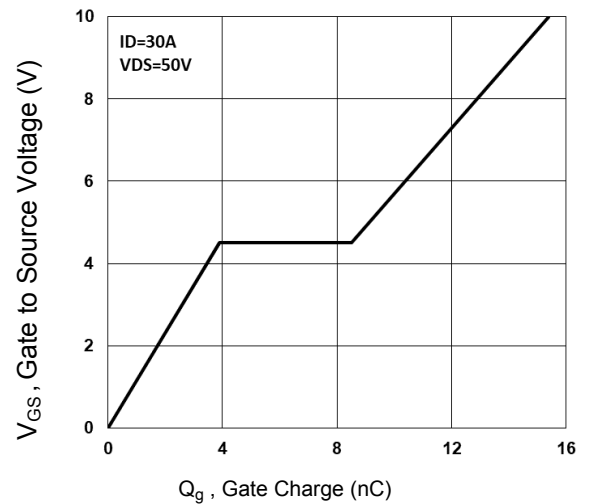
**Fig.1 Continuous Drain Current vs.  $T_C$**



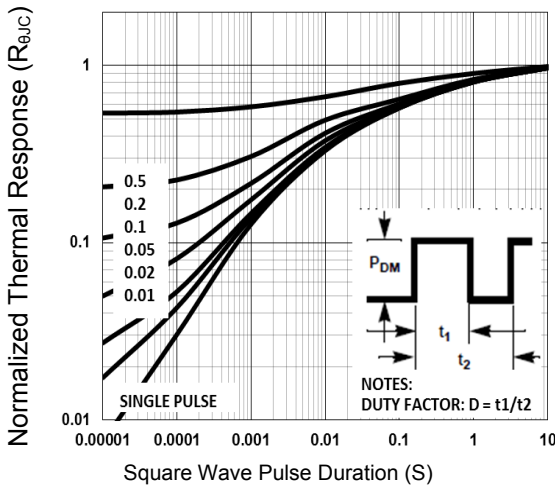
**Fig.2 Normalized  $R_{DS(on)}$  vs.  $T_J$**



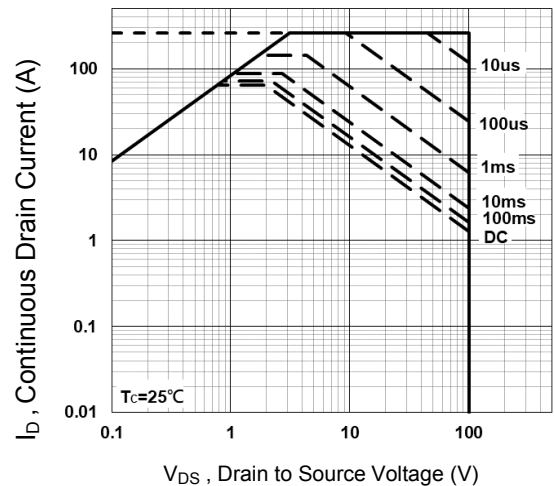
**Fig.3 Normalized  $V_{th}$  vs.  $T_J$**



**Fig.4 Gate Charge Waveform**



**Fig.5 Normalized Transient Impedance**



**Fig.6 Maximum Safe Operation Area**

**Typical Electrical and Thermal Characteristic Curves**

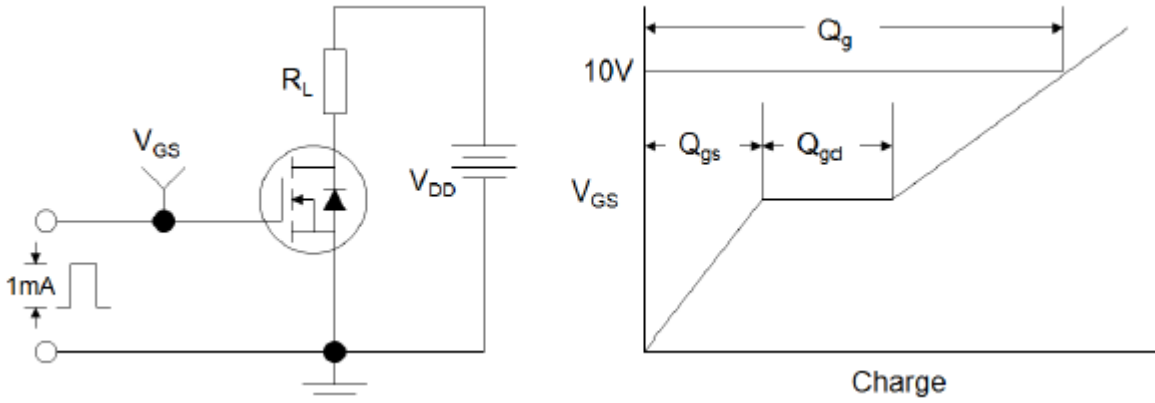


Figure 7. Gate Charge Test Circuit & Waveform

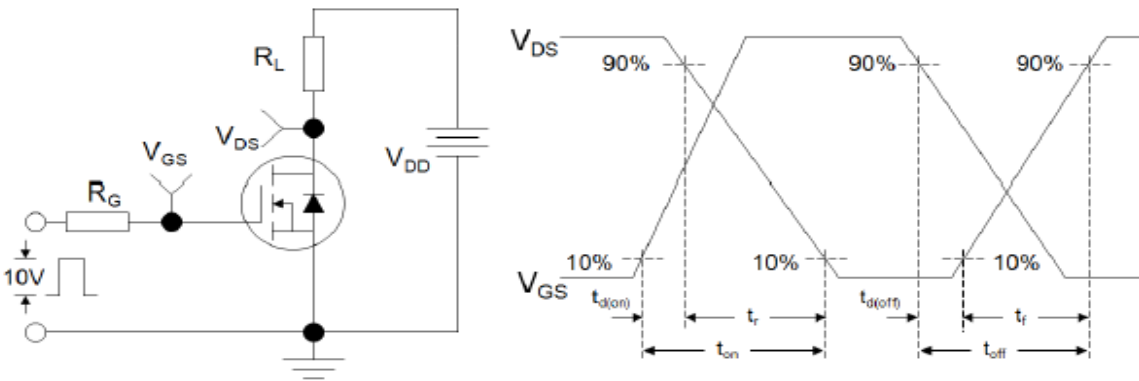


Figure 8. Resistive Switching Test Circuit & Waveforms

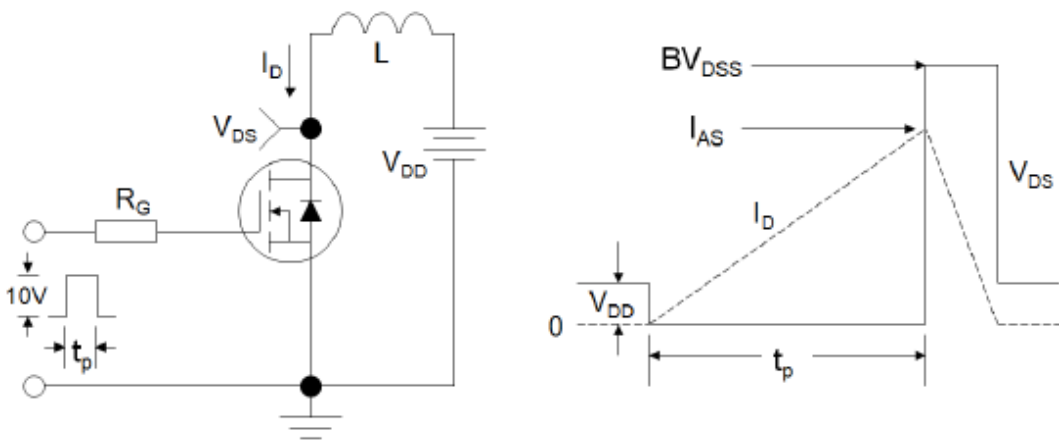
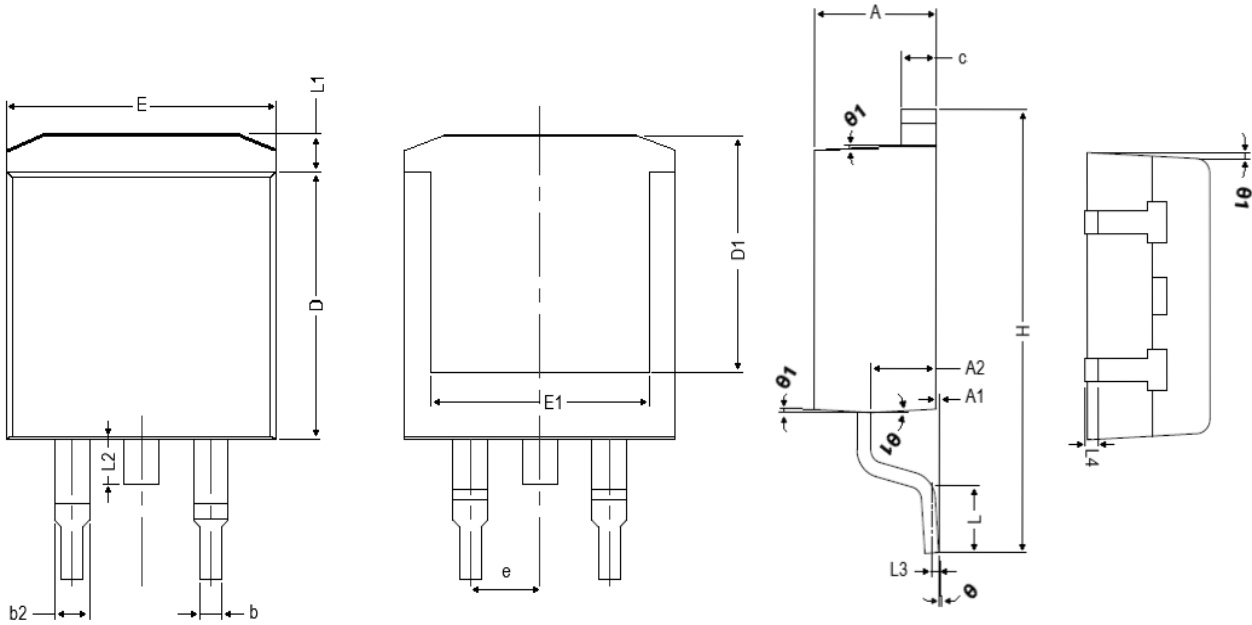


Figure 9.  $E_{AS}$  Circuit & Waveforms

**Package Outline Dimensions**

**TO-263(D<sup>2</sup>PAK)**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MAX	MIN	MAX	MIN
A	4.850	4.250	0.191	0.167
A1	0.250	0.000	0.001	0.000
A2	2.900	2.350	0.114	0.093
b	0.950	0.700	0.037	0.028
b2	1.600	1.000	0.063	0.039
c	1.450	1.200	0.057	0.047
D	9.500	8.350	0.374	0.329
D1	9.150	6.400	0.360	0.252
E	10.500	9.600	0.413	0.378
E1	8.900	7.500	0.350	0.295
e	2.540 BSC		0.100 BSC	
H	15.900	14.600	0.626	0.575
L	2.800	2.000	0.110	0.079
L1	1.700	1.150	0.067	0.045
L2	2.100	1.400	0.083	0.055
L3	0.250 BSC		0.010 BSC	
L4	0.750	0.200	0.030	0.001
θ	0°	8°	0°	8°
θ1	5°	1°	5°	1°