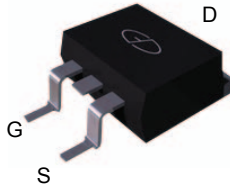
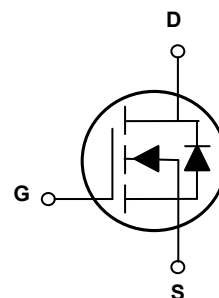


Main Product Characteristics

BV_{DSS}	60V
$R_{DS(ON)}$	2.4m Ω
I_D	200A



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 GSGT06200 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}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous	I_D	200	A
Drain Current-Continuous ($T_C=100^{\circ}C$)		140	
Drain Current-Pulsed	I_{DM}	800	A
Single Pulse Avalanche Energy ⁵	E_{AS}	1200	mJ
Maximum Power Dissipation	P_D	255	W
Derating Factor		1.7	
Thermal Resistance, Junction-to-Case ²	$R_{\theta JC}$	0.59	$^{\circ}C/W$
Operating Junction Temperature Range	T_J	-55 To +175	$^{\circ}C$
Storage Temperature Range	T_{STG}	-55 To +175	$^{\circ}C$

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	60	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60V, V_{GS}=0V$	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
On Characteristics³						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	1.0	1.7	2.5	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=100A$	-	1.9	2.4	m Ω
		$V_{GS}=4.5V, I_D=100A$	-	2.1	2.7	
Forward Transconductance	g_{fs}	$V_{DS}=10V, I_D=100A$	-	60	-	S
Dynamic and Switching Characteristics⁴						
Input Capacitance	C_{iss}	$V_{DS}=30V, V_{GS}=0V, F=1MHz$	-	8700	-	pF
Output Capacitance	C_{oss}		-	1600	-	
Reverse Transfer Capacitance	C_{rss}		-	60	-	
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=30V, R_G=4.7\Omega, V_{GS}=10V, I_D=100A$	-	11	-	nS
Turn-On Rise Time	t_r		-	5	-	
Turn-Off Delay Time	$t_{d(off)}$		-	56	-	
Turn-Off Fall Time	t_f		-	12	-	
Total Gate Charge	Q_g	$V_{DS}=30V, I_D=100A, V_{GS}=10V$	-	164	-	nC
Gate-Source Charge	Q_{gs}		-	29	-	
Gate-Drain Charge	Q_{gd}		-	19	-	
Drain-Source Diode Characteristics						
Diode Forward Current ²	I_S		-	-	120	A
Diode Forward Voltage ³	V_{SD}	$V_{GS}=0V, I_S=200A$	-	-	1.2	V
Reverse Recovery Time	t_{rr}	$I_F=I_S, di/dt=100A/\mu s^3, T_J=25^\circ C$	-	67	-	nS
Reverse Recovery Charge	Q_{rr}		-	112	-	nC

Note:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, $t \leq 10$ sec.
3. Pulse test: pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
4. Guaranteed by design.
5. EAS condition: $T_J=25^\circ C, V_{DD}=30V, V_G=10V, L=0.5mH, R_g=25\Omega$

Typical Electrical and Thermal Characteristic Curves

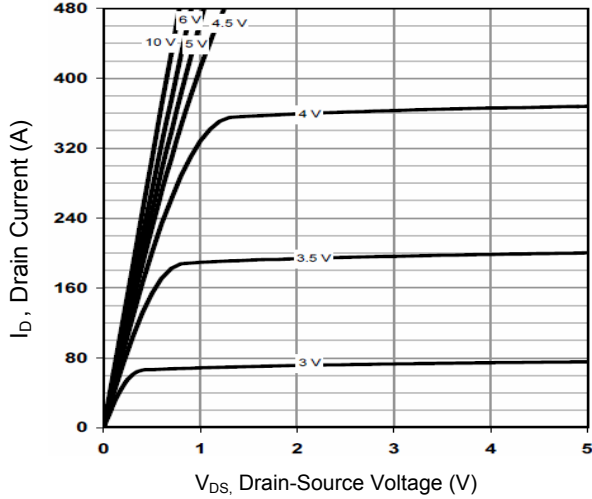


Fig.1 Output Characteristics

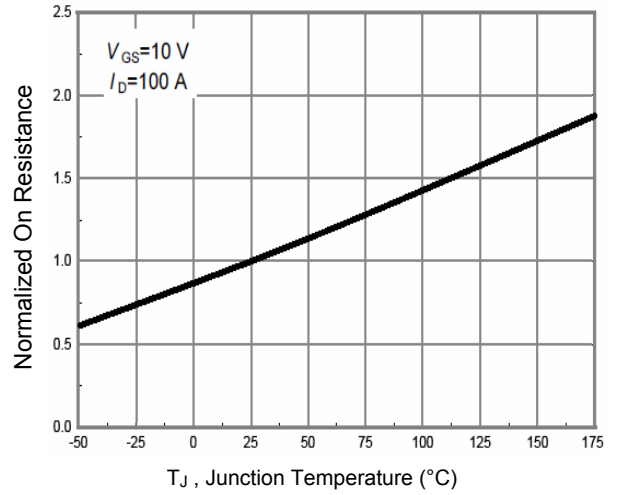


Fig.2 Rdson-JunctionTemperature

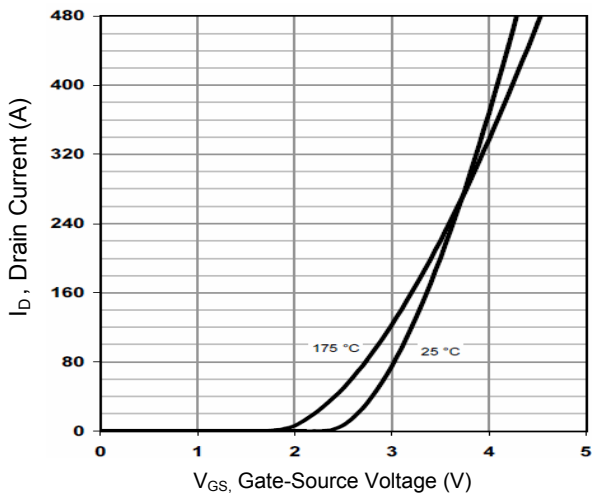


Fig.3 Transfer Characteristics

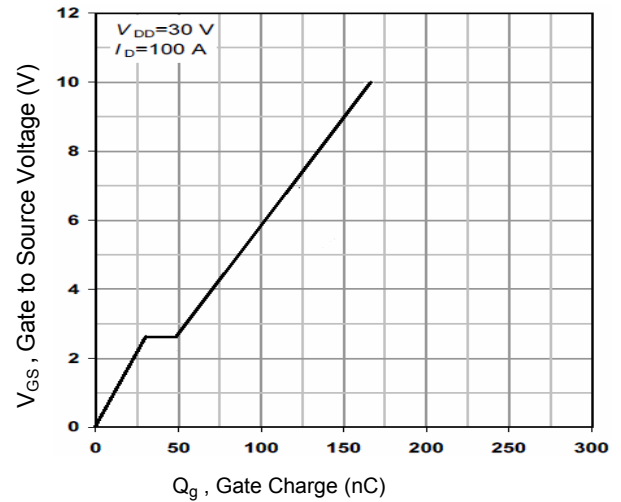


Fig.4 Gate Charge

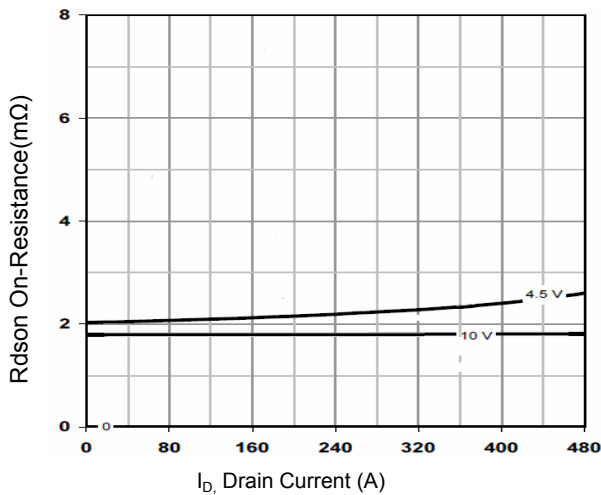


Fig.5 Rdson- Drain Current

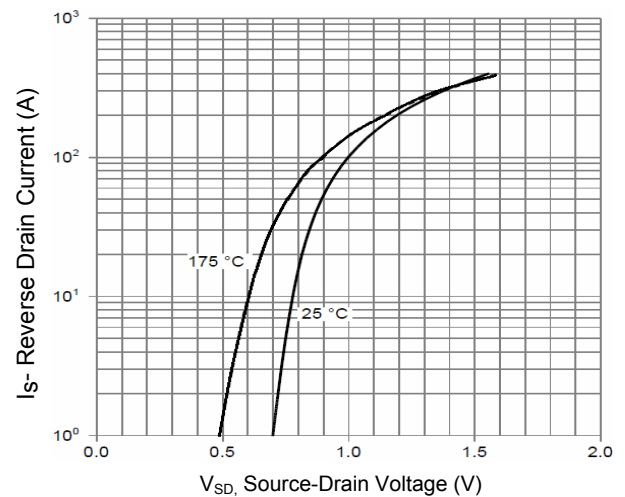


Fig.6 Source- Drain Diode Forward

Typical Electrical and Thermal Characteristic Curves

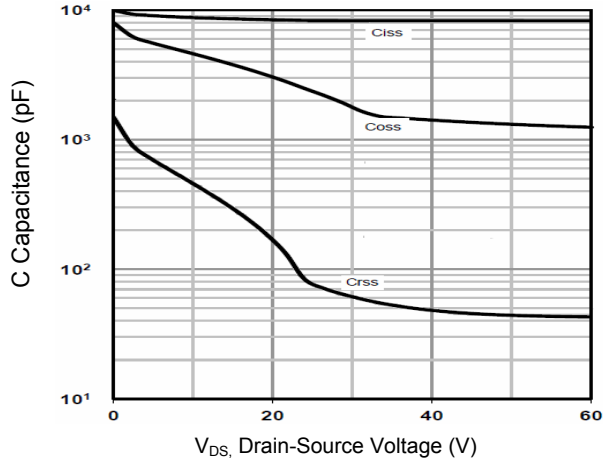


Fig.7 Capacitance vs V_{DS}

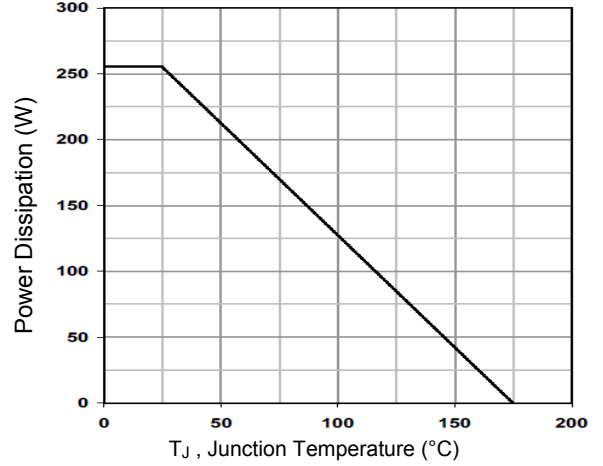


Fig.8 Power De-rating

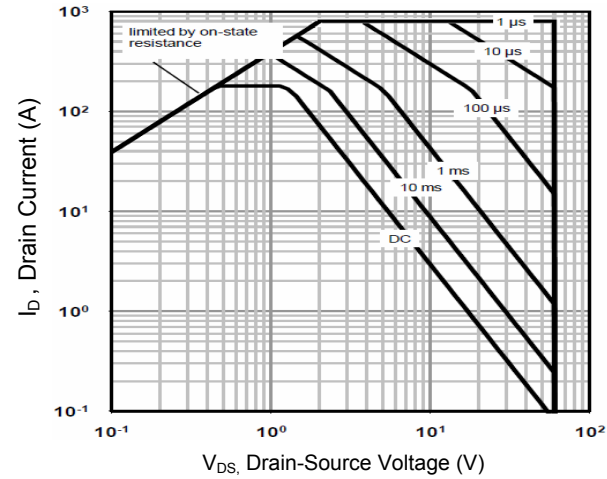


Fig.9 Safe Operation Area

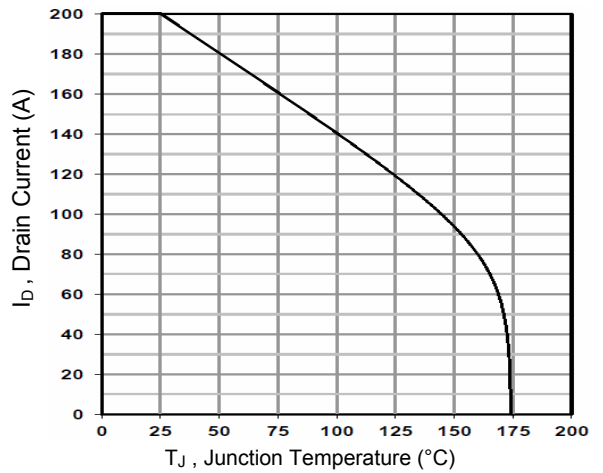


Fig.10 Current De-rating

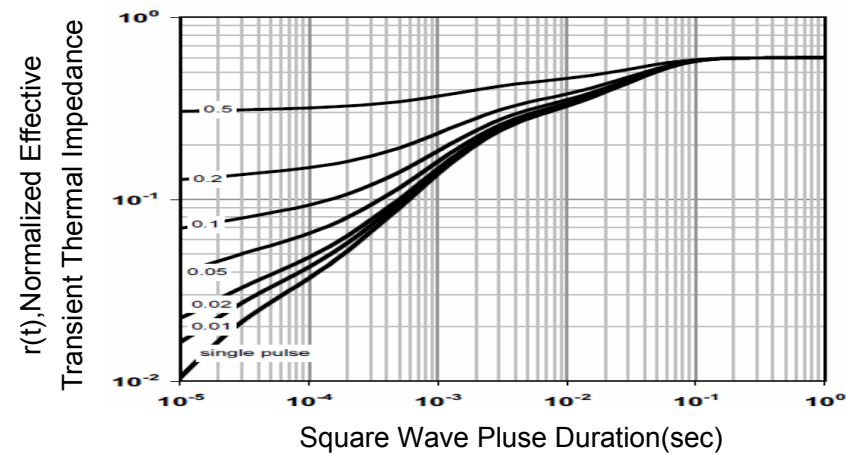


Figure. 11 Normalized Maximum Transient Thermal Impedance

Typical Electrical and Thermal Characteristic Curves

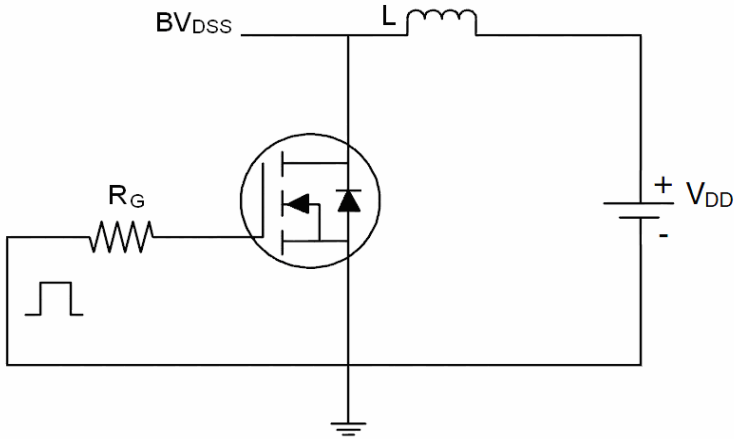


Figure 12. E_{AS} Test Circuit

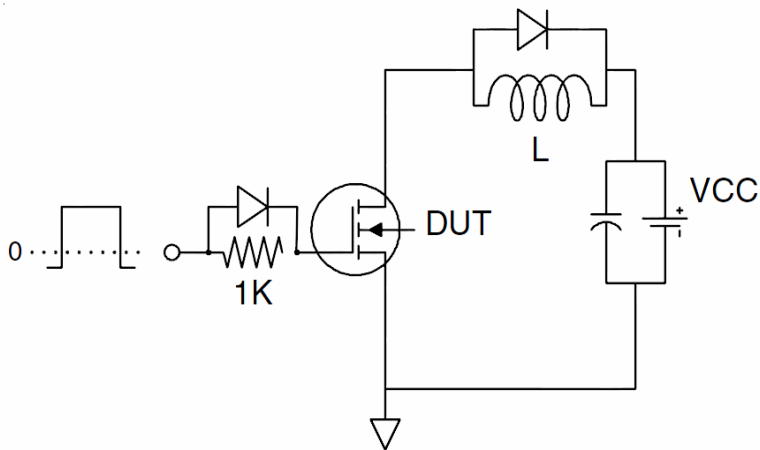


Figure 13. Gate Charge Test Circuit

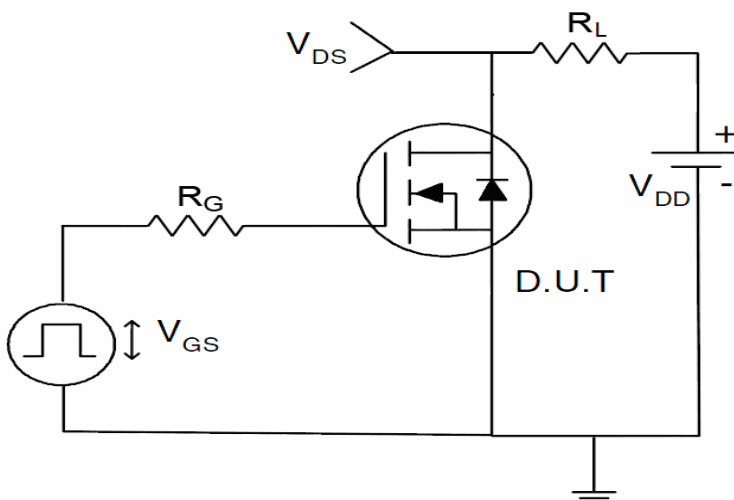
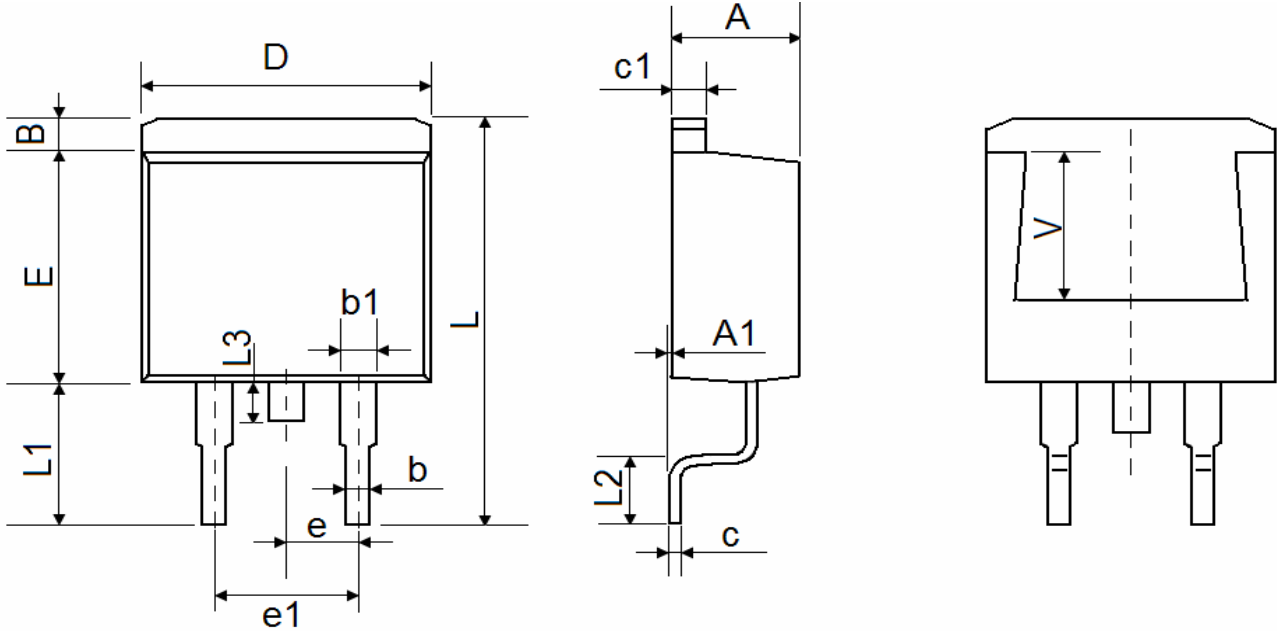


Figure 14. Switch Time Test Circuit

Package Outline Dimensions

TO-263(D²PAK)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.470	4.670	0.176	0.184
A1	0.000	0.150	0.000	0.006
B	1.170	1.370	0.046	0.054
b	0.710	0.910	0.028	0.036
b1	1.170	1.370	0.046	0.054
c	0.310	0.530	0.012	0.021
c1	1.170	1.370	0.046	0.054
D	10.010	10.310	0.394	0.406
E	8.500	8.900	0.335	0.350
e	2.540 TYP.		0.100 TYP.	
e1	4.980	5.180	0.196	0.204
L	15.050	15.450	0.593	0.608
L1	5.080	5.480	0.200	0.216
L2	2.340	2.740	0.092	0.108
L3	1.300	1.700	0.051	0.067
V	5.600 REF		0.220 REF	