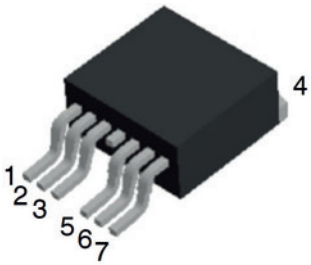
GOOD-ARK SEMICONDUCTOR

GSGT72R006

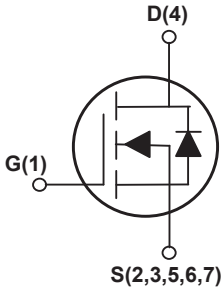
60V N-Channel MOSFET

Main Product Characteristics

$V_{(BR)DSS}$	60V
$R_{DS(ON)}$	1.56mΩ (Typ.)
I_D	246A



TO-263-7L



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 GSGT72R006 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 supplies and a wide variety of other applications.

Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Max.	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-to-Source Voltage	V_{GS}	±20	V
Continuous Drain Current, @ Steady-State (T_C=25°C)	I_D	246	A
Continuous Drain Current, @ Steady-State (T_C=100°C)		156	A
Pulsed Drain Current	I_{DM}	984	A
Power Dissipation (T_C=25°C)	P_D	212	W
		1.41	W/°C
Single Pulse Avalanche Energy[1]	E_{AS}	756	mJ
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	0.71	°C/W
Operating Junction and Storage Temperature Range	T_J/T_{STG}	-55 to +175	°C

Electrical Characteristics (T_J=25°C unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
On / Off Characteristics						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250μA	60	-	-	V
Drain-to-Source Leakage Current	I_{DSS}	V_{DS}=60V, V_{GS}=0V	-	-	1.0	μA
		V_{DS}=60V, V_{GS}=0V ,T_J=125°C	-	-	100	μA
Gate-to-Source Forward Leakage	I_{GSS}	V_{GS}=20V	-	-	100	nA
		V_{GS}=-20V	-	-	-100	
Static Drain-to-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=30A	-	1.56	2.0	mΩ
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	2.1	-	3.9	V
Dynamic and Switching Characteristics						
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=30V, f=1MHz	-	6312	-	pF
Output Capacitance	C_{oss}		-	1679	-	
Reverse Transfer Capacitance	C_{rss}		-	39.6	-	
Total Gate Charge[2,3]	Q_g	I_D=20A, V_{DS}=30V, V_{GS}=10V	-	94.4	-	nC
Gate-to-Source Charge[2,3]	Q_{gs}		-	17.2	-	
Gate-to-Drain ("Miller") Charge[2,3]	Q_{gd}		-	13.2	-	
Turn-on Delay Time[2,3]	$t_{d(on)}$	V_{GS}=10V, V_{DS}=30V, R_G=1.5Ω, R_{GEN}=6Ω	-	19.8	-	nS
Rise Time[2,3]	t_r		-	14.8	-	
Turn-Off Delay Time[2,3]	$t_{d(off)}$		-	77.2	-	
Fall Time[2,3]	t_f		-	20.4	-	
Gate resistance	R_g	f=1MHz	-	1.8	-	Ω
Source-Drain Ratings and Characteristics						
Continuous Source Current (Body Diode)	I_S	MOSFET symbol showing the integral reverse p-n junction diode.	-	-	246	A
Diode Forward Voltage	V_{SD}	I_S=20A, V_{GS}=0V	-	-	1.2	V
Reverse Recovery Time[2]	T_{rr}	V_{GS}=0V, I_F=20A, dI_F/dt=100A/μs	-	65.8	-	nS
Reverse Recovery Charge[2]	Q_{rr}		-	82.3	-	nC

Note:

1. L=0.5mH, R_G=25Ω, V_G=10V, V_{DD}=40V, T_J=25°C .
2. Pulse test: pulse width ≤300us, duty cycle ≤2%.
3. Basically unaffected by operating temperature.

Typical Electrical and Thermal Characteristic Curves

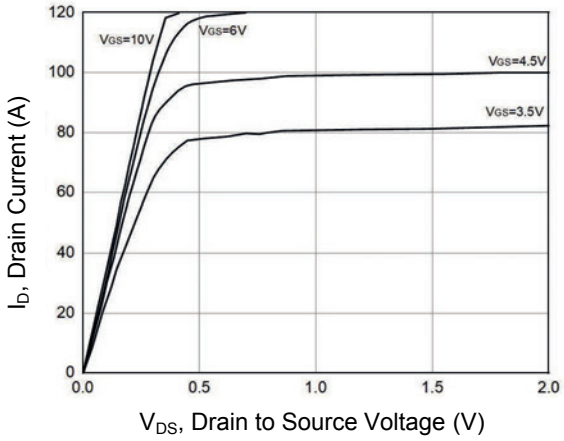


Figure 1. Typical Output Characteristics

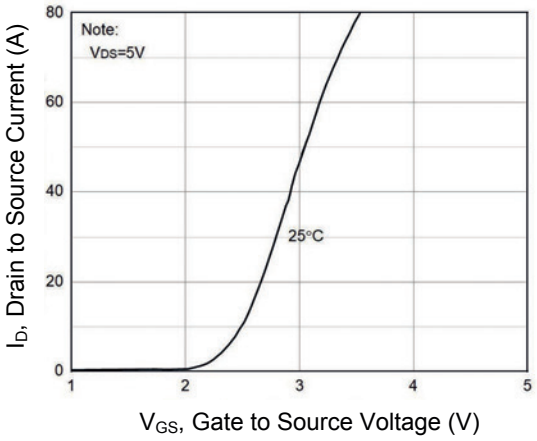


Figure 2. Typical Transfer Characteristics

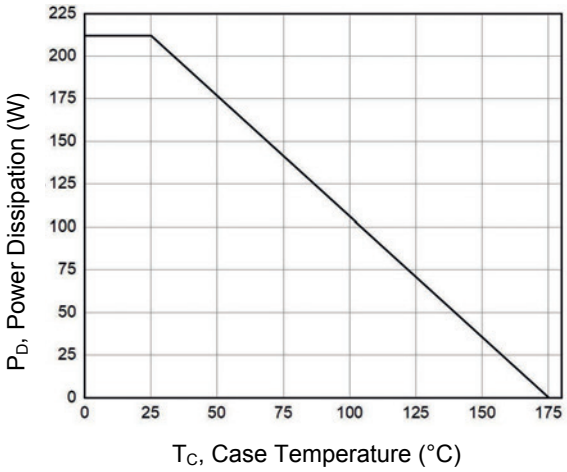


Figure 3. Power Dissipation

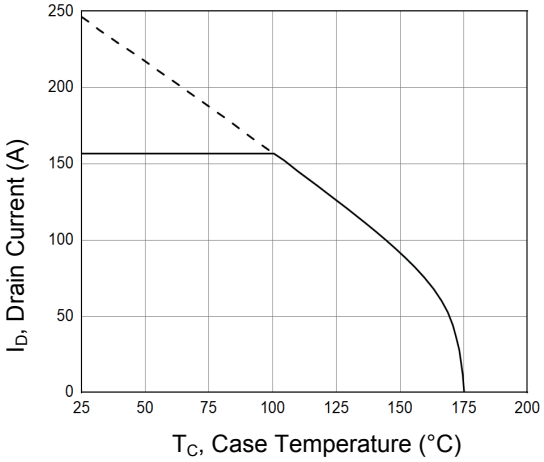


Figure 4. Drain Current vs. T_C

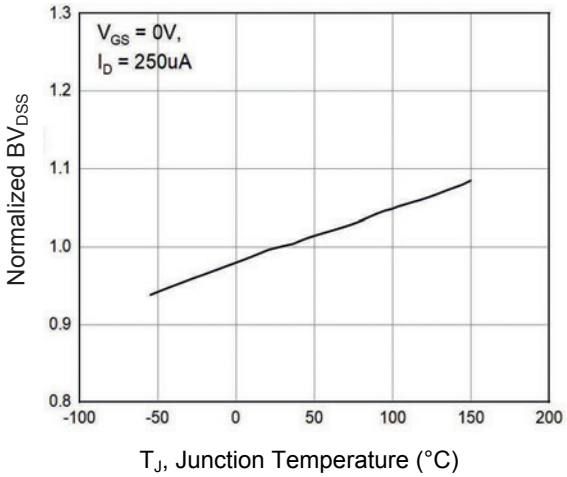


Figure 5. Normalized BV_{DSS} vs. T_J

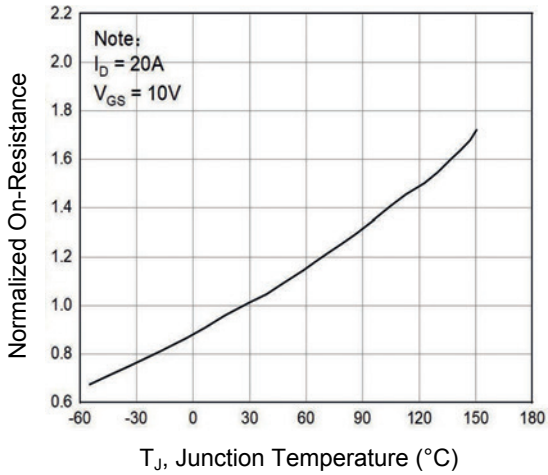


Figure 6. Normalized $R_{DS(ON)}$ vs. T_J

Typical Electrical and Thermal Characteristic Curves

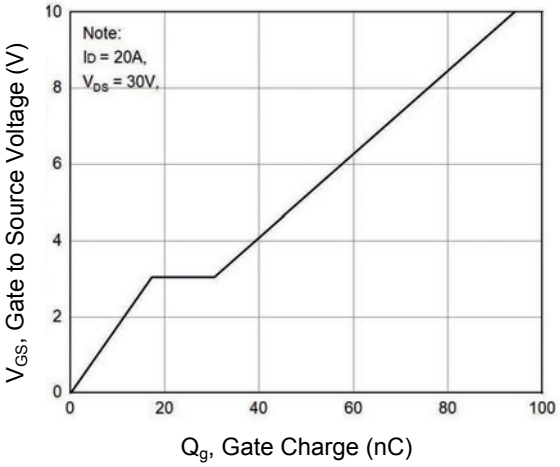


Figure 7. Gate Charge

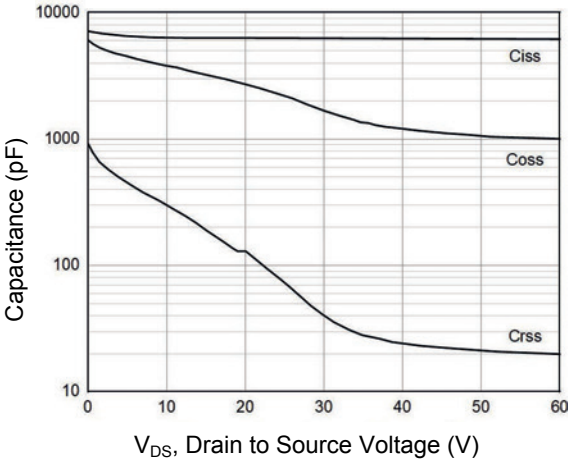


Figure 8. Capacitance Characteristics

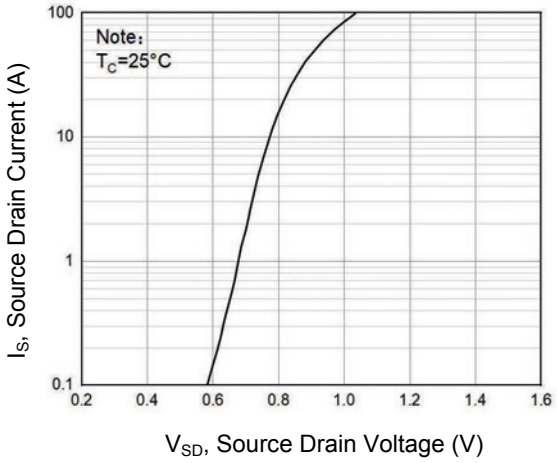


Figure 9. Body Diode Characteristics

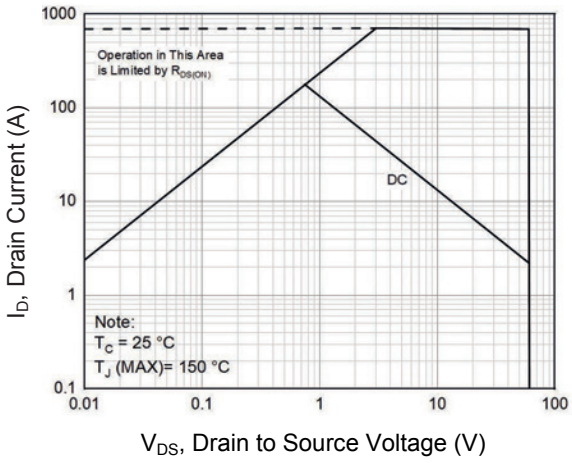
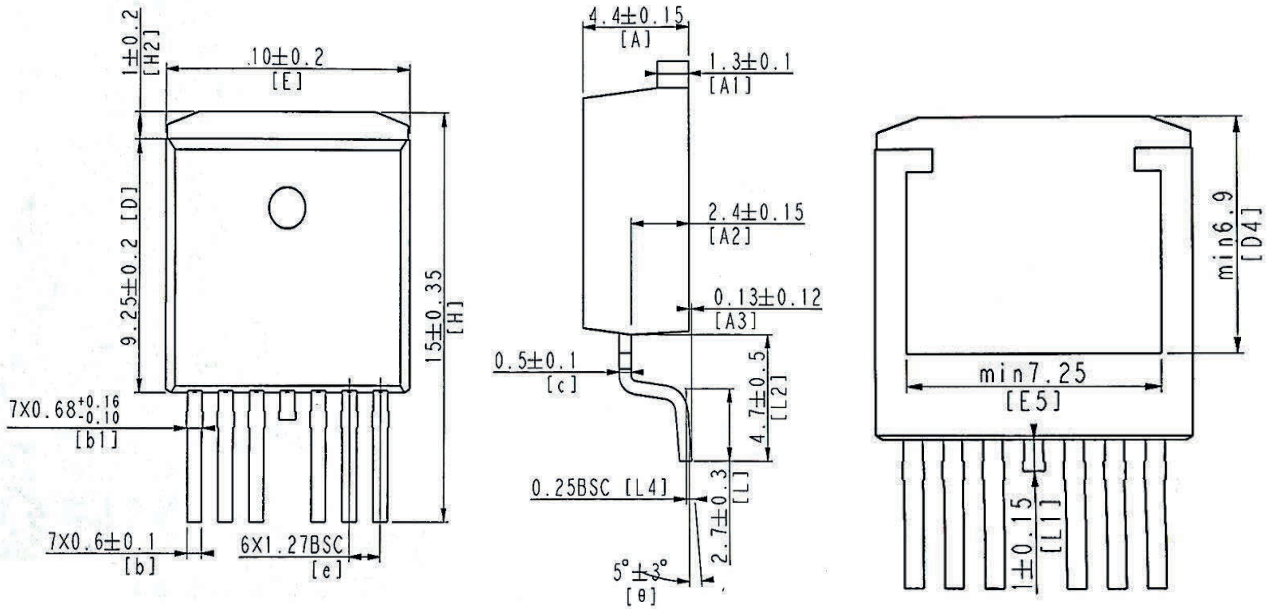


Figure 10. Safe Operation Area

Package Outline Dimensions TO-263-7L (D2PAK-7L)



(unit: mm)

Order Information

Device	Package	Marking	Carrier	Quantity
GSGT72R006	TO-263-7L	T72R006	Tape & Reel	800 Pcs / Reel