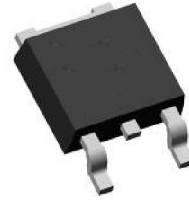
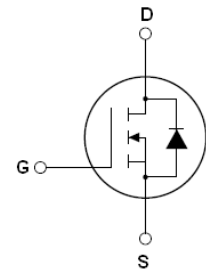


Main Product Characteristics

$V_{(BR)DSS}$	650V
$R_{DS(ON)}$	600m Ω
I_D	7A



TO-252 (DPAK)



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 GSJD6507 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 ($T_C=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Max.	Unit
Drain-Source Voltage ($V_{GS}=0V$)	V_{DS}	650	V
Gate-Source Voltage ($V_{DS}=0V$), AC ($f>1$ Hz)	V_{GS}	± 30	V
Continuous Drain Current at $T_C=25^\circ\text{C}$	$I_{D(DC)}$	7	A
Continuous Drain Current at $T_C=100^\circ\text{C}$	$I_{D(DC)}$	4.5	A
Pulsed Drain Current ¹	$I_{DM(pulse)}$	28	A
Maximum Power Dissipation($T_C=25^\circ\text{C}$) Derate Above 25°C	P_D	60	W
Derate Above 25°C		0.48	W/ $^\circ\text{C}$
Single Pulse Avalanche Energy ²	E_{AS}	101	mJ
Avalanche Current ¹	I_{AR}	1.5	A
Repetitive Avalanche Energy t_{AR} Limited by T_{jmax} ¹	E_{AR}	0.28	mJ
Drain Source Voltage Slope, $V_{DS}\leq 480V$	dv/dt	50	V/ns
Reverse Diode dv/dt , $V_{DS}\leq 480V$, $I_{SD}<I_D$	dv/dt	15	V/ns
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^\circ\text{C}$
Thermal Resistance, Junction-to-Case(Maximum)	R_{thJC}	2.08	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Ambient (Maximum)	R_{thJA}	62	$^\circ\text{C/W}$

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

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	650	-	-	V
Zero Gate Voltage Drain Current(Tc=25°C)	I _{DSS}	V _{DS} =650V, V _{GS} =0V	-	-	1	μA
Zero Gate Voltage Drain Current(Tc=125°C)	I _{DSS}	V _{DS} =650V, V _{GS} =0V	-	-	100	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	3	-	4	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =3.5A	-	600	680	mΩ
Input Capacitance	C _{iss}	V _{DS} =50V, V _{GS} =0V, F=1.0MHz	-	435	-	pF
Output Capacitance	C _{oss}		-	28	-	pF
Reverse Transfer Capacitance	C _{rss}		-	3.3	-	pF
Total Gate Charge	Q _g	V _{DS} =480V, I _D =7A, V _{GS} =10V	-	11	-	nC
Gate-Source Charge	Q _{gs}		-	3.5	-	nC
Gate-Drain Charge	Q _{gd}		-	5	-	nC
Turn-On Delay Time	t _{d(on)}	V _{DD} =380V, I _D =3.5A, R _G =4.7Ω, V _{GS} =10V	-	8	-	nS
Turn-On Rise Time	t _r		-	7	-	nS
Turn-Off Delay Time	t _{d(off)}		-	58	75	nS
Turn-Off Fall Time	t _f		-	9	15	nS
Source- Drain Diode Characteristics						
Source-Drain Current (Body Diode)	I _{SD}	T _C =25°C	-	-	7	A
Pulsed Source-Drain Current (Body Diode)	I _{SDM}		-	-	28	A
Forward On Voltage	V _{SD}	T _J =25°C, I _{SD} =7A, V _{GS} =0V	-	0.9	1.2	V
Reverse Recovery Time	t _{rr}	T _J =25°C, I _F =3.5A, di/dt=100A/μs	-	210	-	nS
Reverse Recovery Charge	Q _{rr}		-	0.85	-	uC
Peak Reverse Recovery Current	I _{rrm}		-	8	-	A

Notes: 1.Repetitive Rating: Pulse width limited by maximum junction temperature

2. T_J=25°C, V_{DD}=50V, V_G=10V, R_G=25Ω

Typical Electrical and Thermal Characteristic Curves

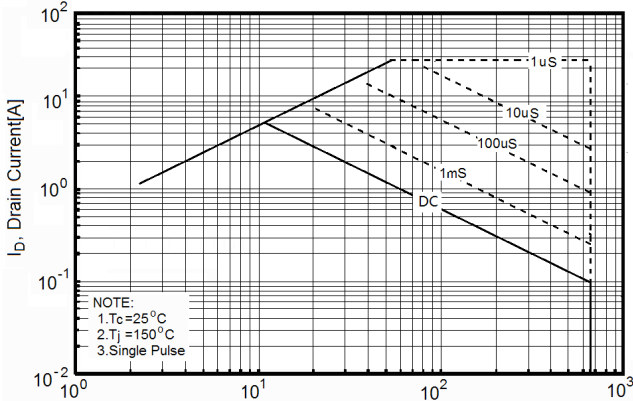


Figure 1. Safe operating area

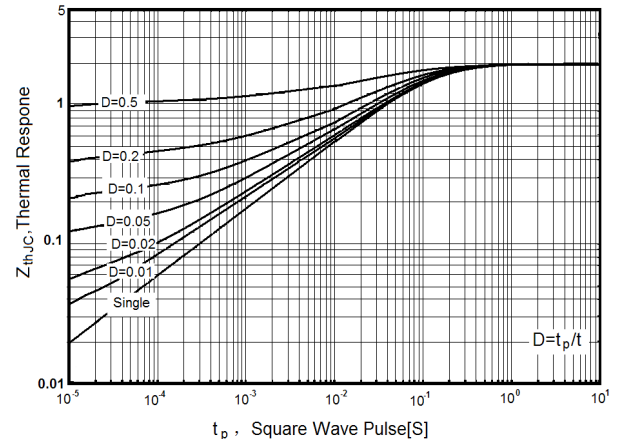


Figure 2. Transient Thermal Impedance

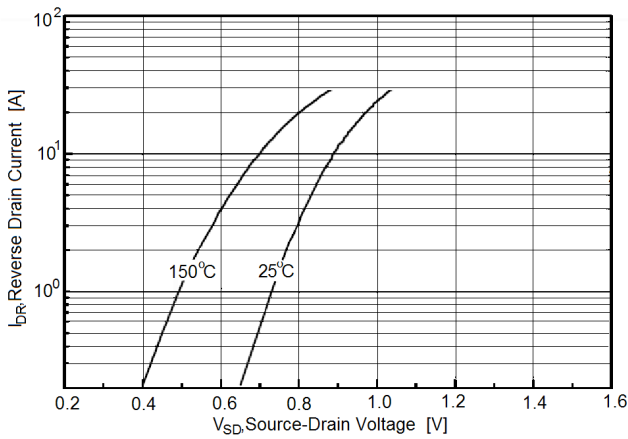


Figure 3. Source-Drain Diode Forward Voltage

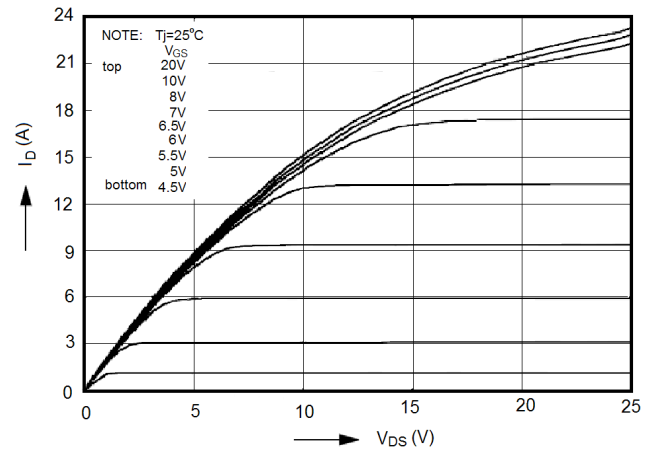


Figure 4. Output characteristics

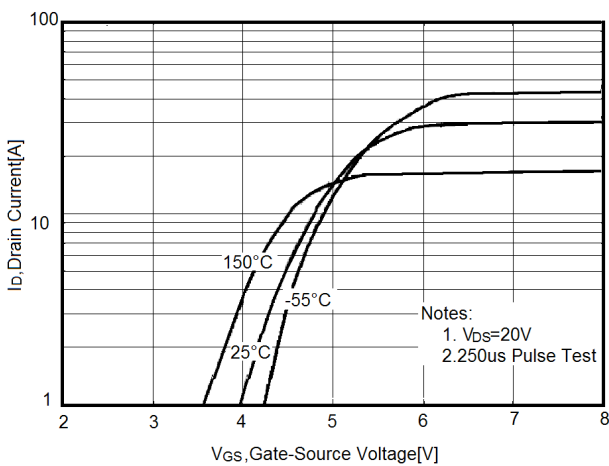


Figure 5. Transfer characteristics

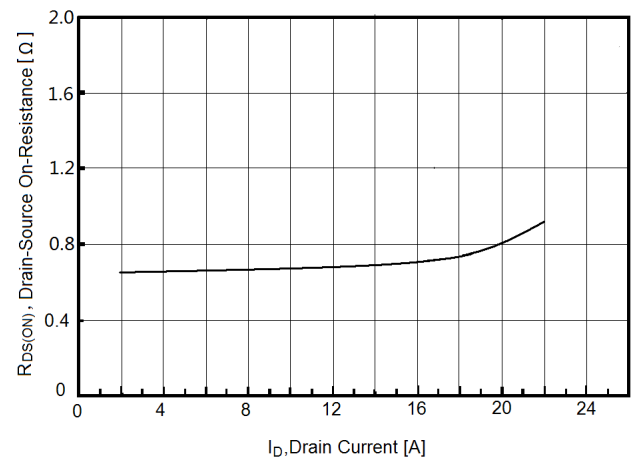


Figure 6. Static drain-source on resistance

Typical Electrical and Thermal Characteristic Curves

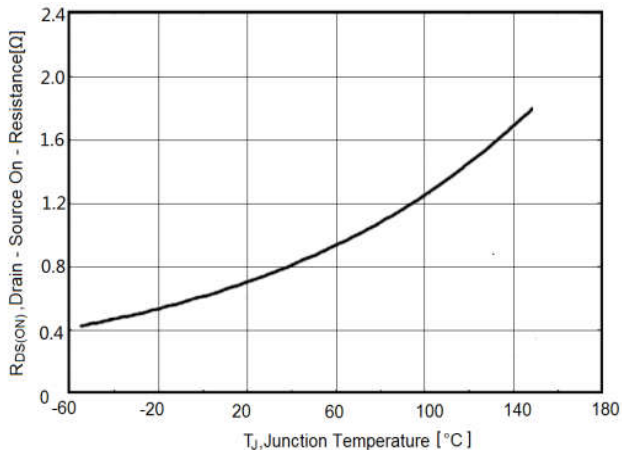


Figure 7. $R_{DS(ON)}$ vs Junction Temperature

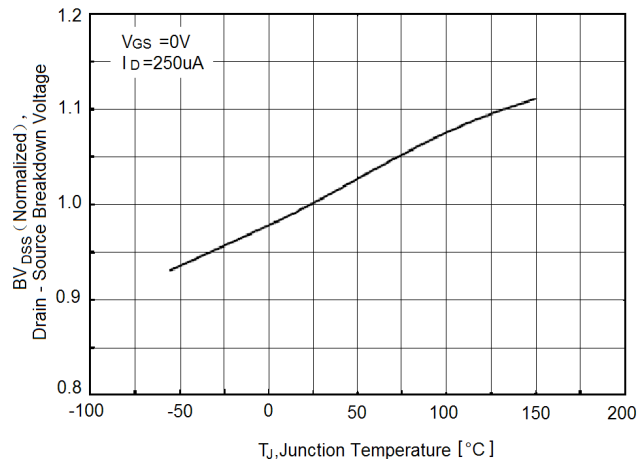


Figure 8. BV_{DSS} vs Junction Temperature

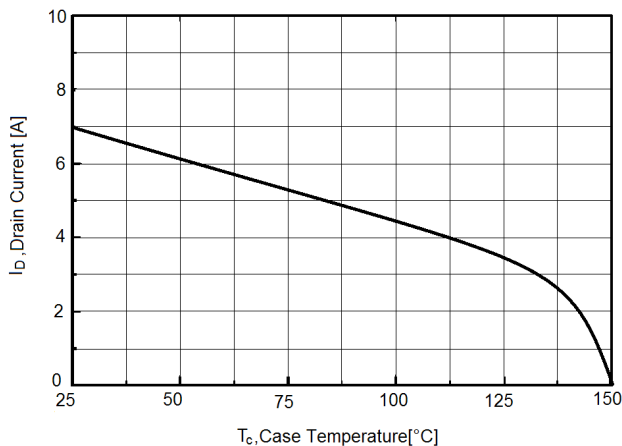


Figure 9. Maximum I_D vs Junction Temperature

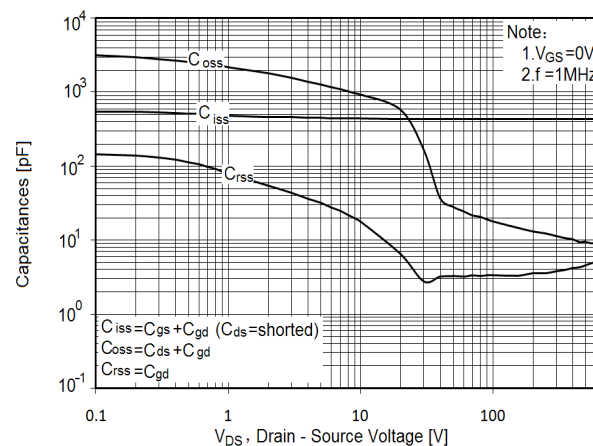


Figure 10. Capacitance

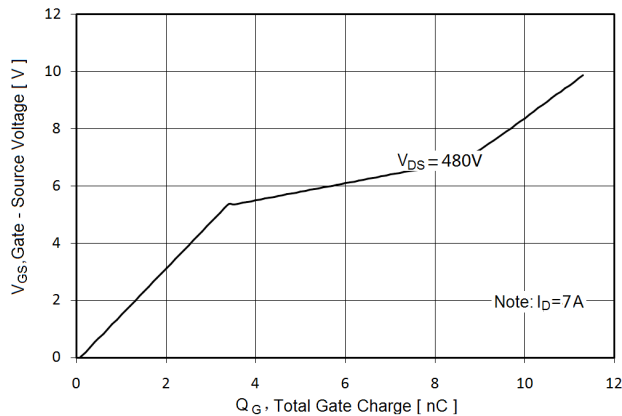


Figure 11. Gate charge waveforms

Typical Electrical and Thermal Characteristic Curves

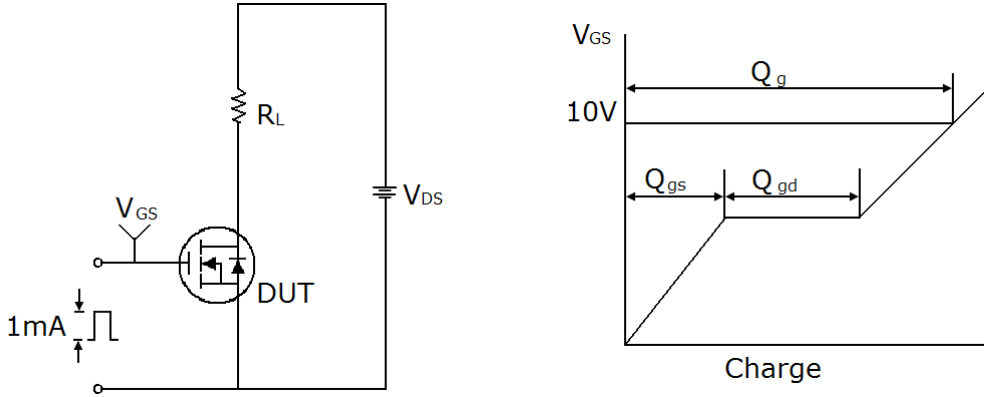


Figure 12. Gate Charge Test Circuit & Waveform

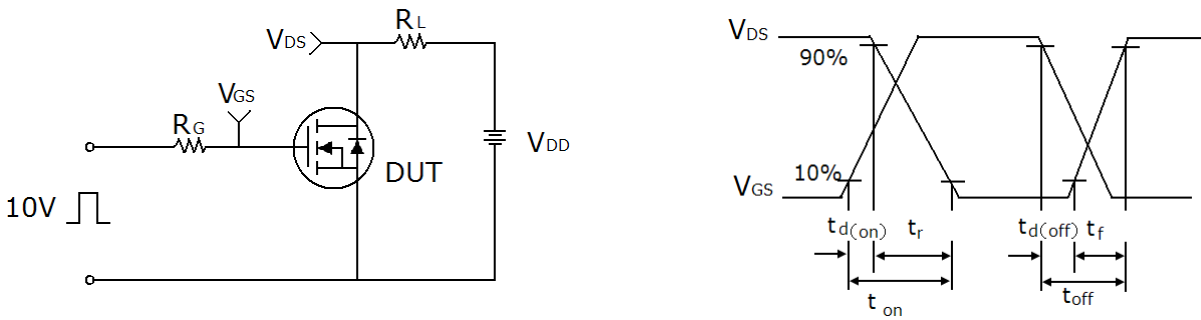


Figure 13. Switch Time Test Circuit

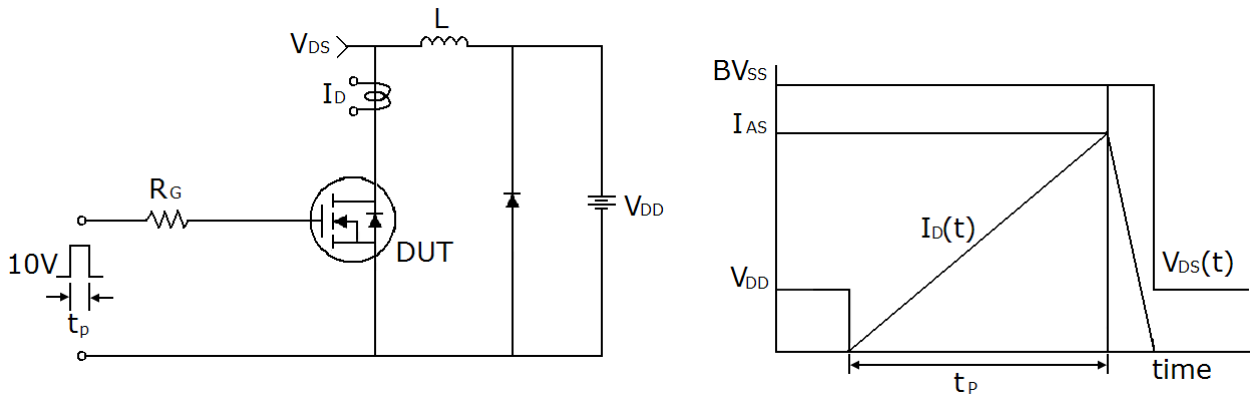
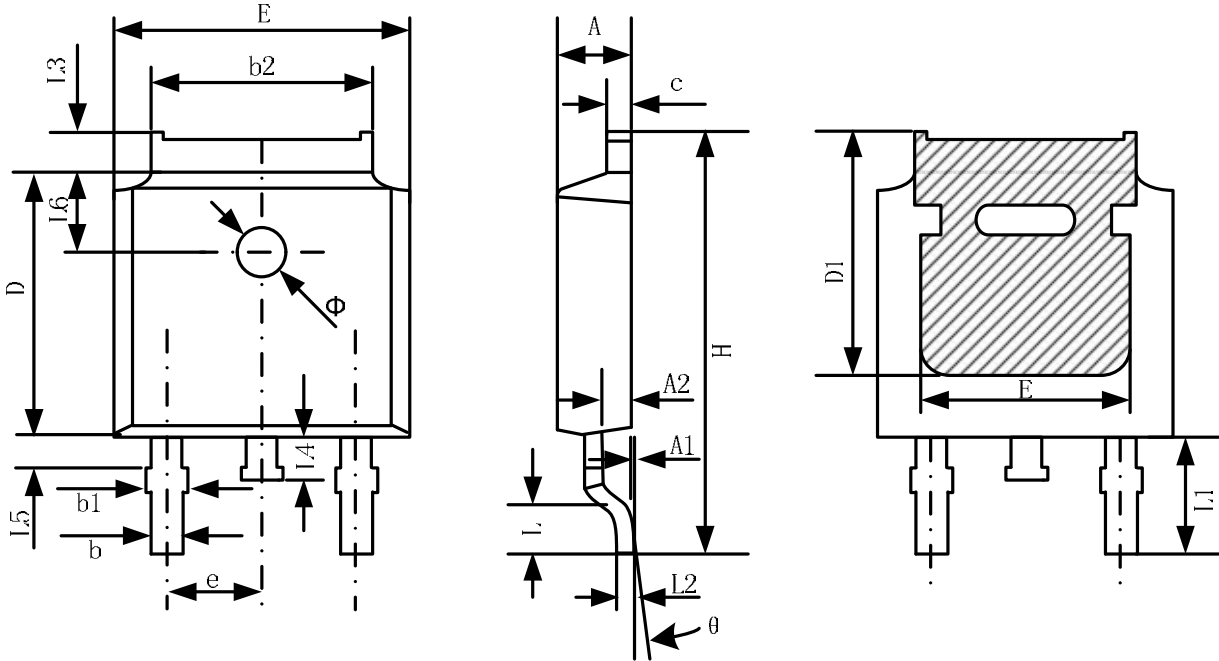


Figure 14. Unclamped Inductive Switching Test Circuit & Waveforms

Package Outline Dimensions

TO-252 (DPAK)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.20	2.38	0.087	0.094
A1	0.00	0.10	0.000	0.004
A2	0.90	1.10	0.035	0.043
b	0.72	0.85	0.028	0.033
b1	0.72	0.90	0.028	0.035
b2	5.13	5.46	0.202	0.215
c	0.47	0.60	0.019	0.024
D	6.00	6.20	0.236	0.244
D1	5.25	--	0.207	--
E	6.50	6.70	0.256	0.264
E1	4.70	--	0.185	--
e	2.19	2.39	0.086	0.094
H	9.80	10.40	0.386	0.409
L	1.40	1.70	0.055	0.067
L1	2.90 REF		0.114 REF	
L2	0.508 BSC		0.020 BSC	
L3	0.90	1.25	0.035	0.049
L4	0.60	1.00	0.024	0.039
L5	0.15	0.75	0.006	0.030
L6	1.80 REF		0.071 REF	
Φ	1.20	1.40	0.047	0.055
θ	0°	8°	0°	8°