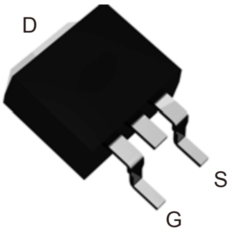
GOOD-ARK
SEMICONDUCTOR

GSGT08298

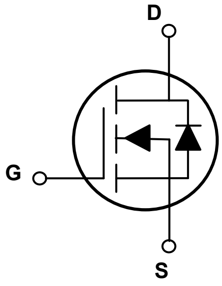
80V N-Channel MOSFET

Main Product Characteristics

BV_{DSS}	80V
$R_{DS(ON)}$	2.0mΩ (Max.)
I_D	298A



TO-263 (D^2PAK)



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

RoHS Compliant

Description

The GSGT08298 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°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	80	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous	I_D	298	A
Drain Current-Continuous (T_C=100°C)		208	A
Pulsed Drain Current	I_{DM}	1192	A
Maximum Power Dissipation	P_D	330	W
Derating Factor		2.2	W/°C
Single Pulse Avalanche Energy[1]	E_{AS}	2228	mJ
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	0.45	°C/W
Thermal Resistance, Junction-to-Ambient[4]	$R_{\theta JA}$	40	°C/W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 To +175	°C

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

Parameter	Symbol	Condition	Min	Typ	Max	Unit
On / Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D=250μA	80	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=80V, V_{GS}=0V	-	-	1	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	2.5	3.5	4.5	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=20A	-	1.6	2.0	mΩ
Forward Transconductance	gfs	V_{DS}=10V, I_D=20A	-	70	-	S
Dynamic and Switching Characteristics						
Input Capacitance	C_{iss}	V_{DS}=40V, V_{GS}=0V, F=1.0MHz	-	9256	-	pF
Output Capacitance	C_{oss}		-	4424	-	
Reverse Transfer Capacitance	C_{rss}		-	128	-	
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DD}=40V, I_D=20A, V_{GS}=10V, R_G=3Ω	-	27.2	-	nS
Turn-On Rise Time[2]	t_r		-	21.3	-	
Turn-Off Delay Time[2]	$t_{d(off)}$		-	56.6	-	
Turn-Off Fall Time[2]	t_f		-	25	-	
Total Gate Charge[2]	Q_g	V_{DS}=40V, I_D=20A, V_{GS}=10V	-	136	-	nC
Gate-Source Charge[2]	Q_{gs}		-	37	-	
Gate-Drain Charge[2]	Q_{gd}		-	30	-	
Drain-Source Ratings and Characteristics						
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=20A	-	-	1.2	V
Diode Forward Current	I_S	-	-	-	298	A
Reverse Recovery Time	t_{rr}	T_J=25°C, I_F=20A, di/dt=100A/μs	-	115.2	-	nS
Reverse Recovery Charge	Q_{rr}		-	333	-	nC

Notes:

1. E_{AS} condition: T_J=25°C, V_{DD}=40V, V_G=10V, L=0.5mH, R_g=25Ω
2. Guaranteed by design, not subject to production
3. These curves are based on the junction-to-case thermal impedance which is measured with the device mounted to a large heatsink, assuming a maximum junction temperature of $T_{J(MAX)}$=175°C. The SOA curve provides a single pulse rating.
4. The value of $R_{\theta JA}$ is measured with the device mounted on 1 in^2 FR-4 board with 2oz. copper, in a still air environment with T_A=25°C. The maximum allowed junction temperature of 175°C. The value in any given application depends on the user's specific board design.

Typical Electrical and Thermal Characteristic Curves

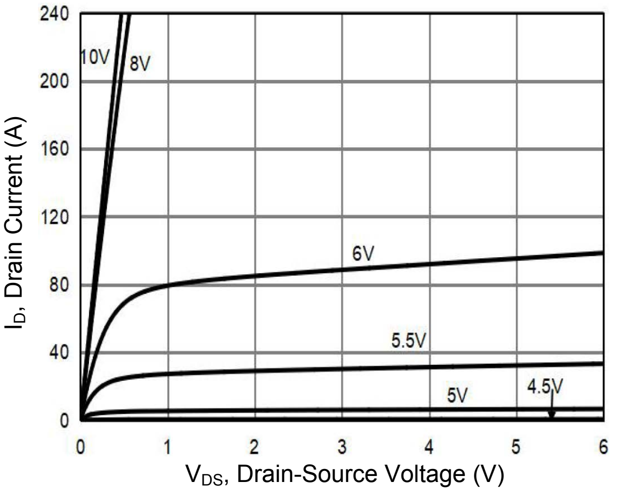


Figure 1. Output Characteristics

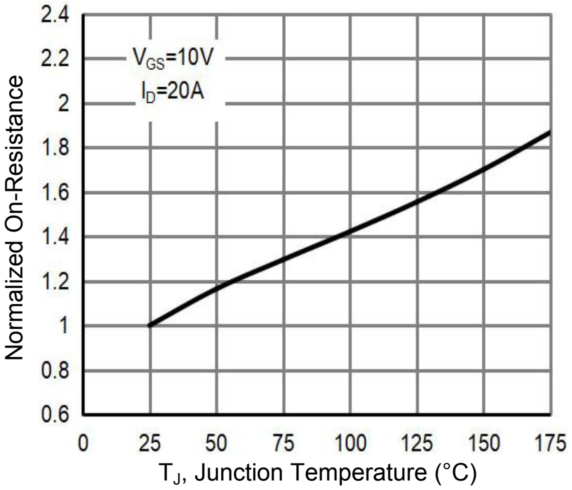


Figure 2. $R_{DS(ON)}$ vs. Junction Temperature

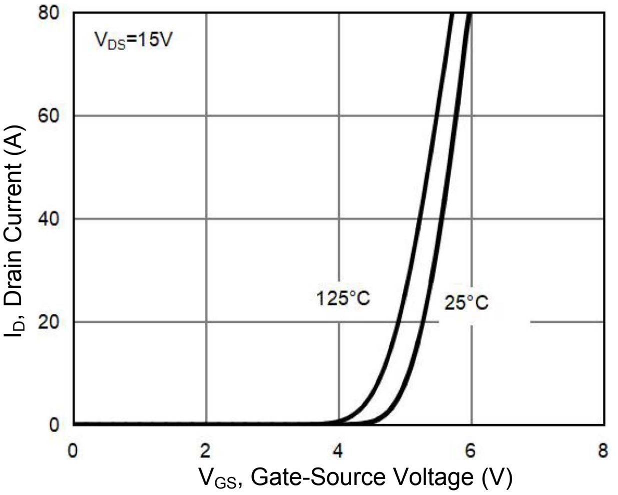


Figure 3. Transfer Characteristics

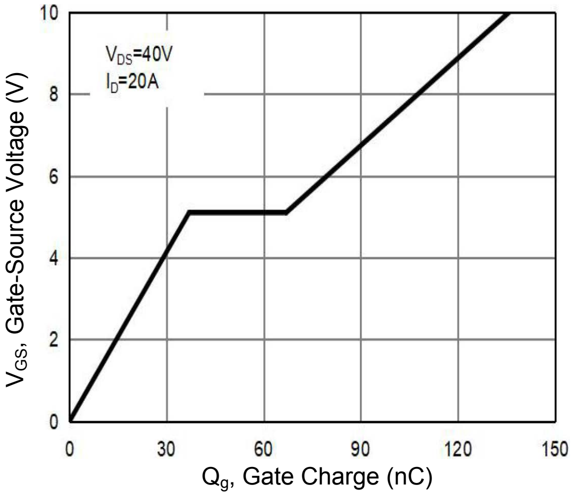


Figure 4. Gate Charge

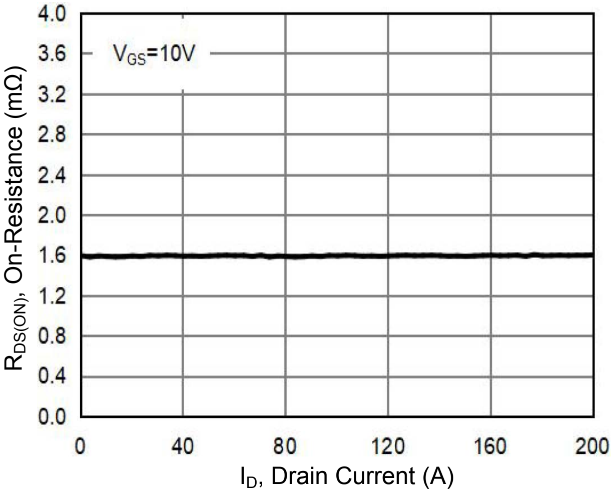


Figure 5. $R_{DS(ON)}$ vs. Drain Current

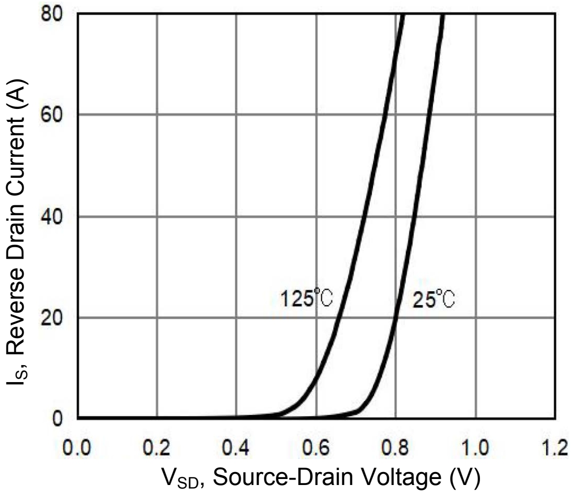


Figure 6. Source-Drain Diode Forward Voltage

Typical Electrical and Thermal Characteristic Curves

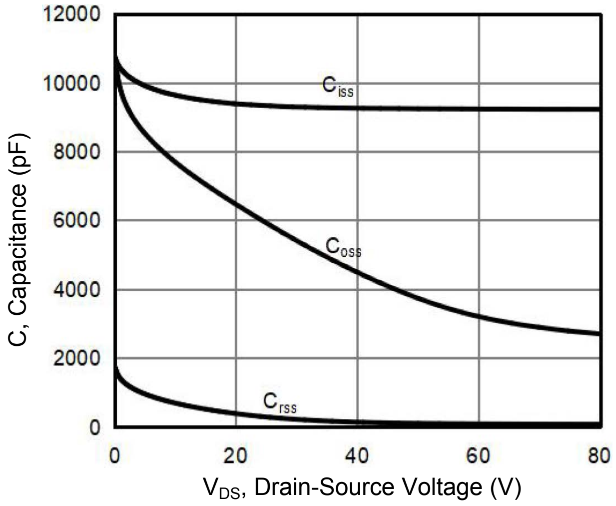


Figure 7. Capacitance vs. V_{DS}

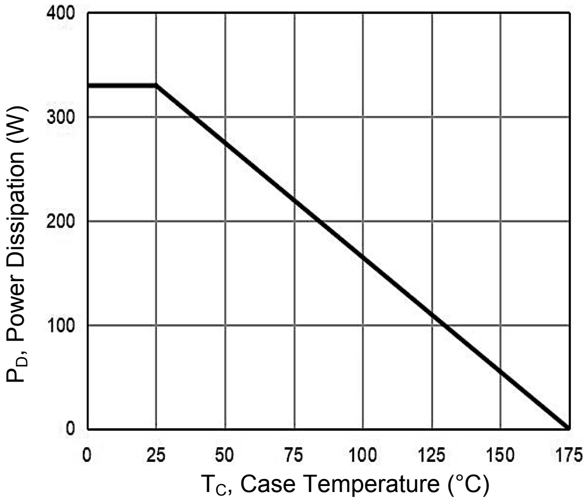


Figure 8. Power De-Rating

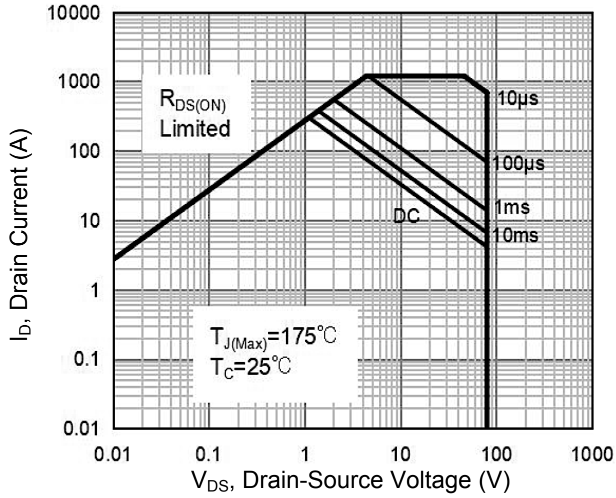


Figure 9. Safe Operation Area[3]

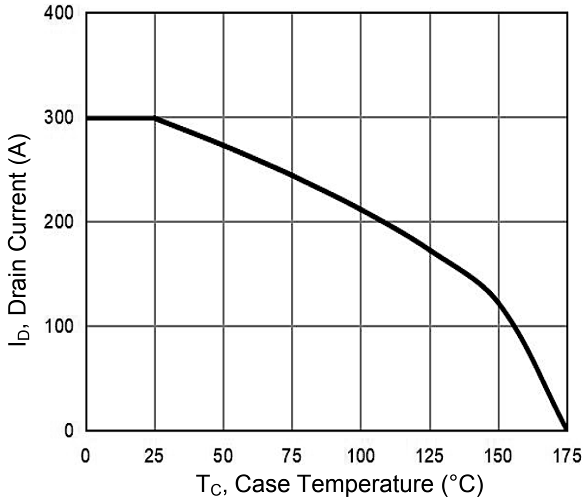


Figure 10. Current De-Rating

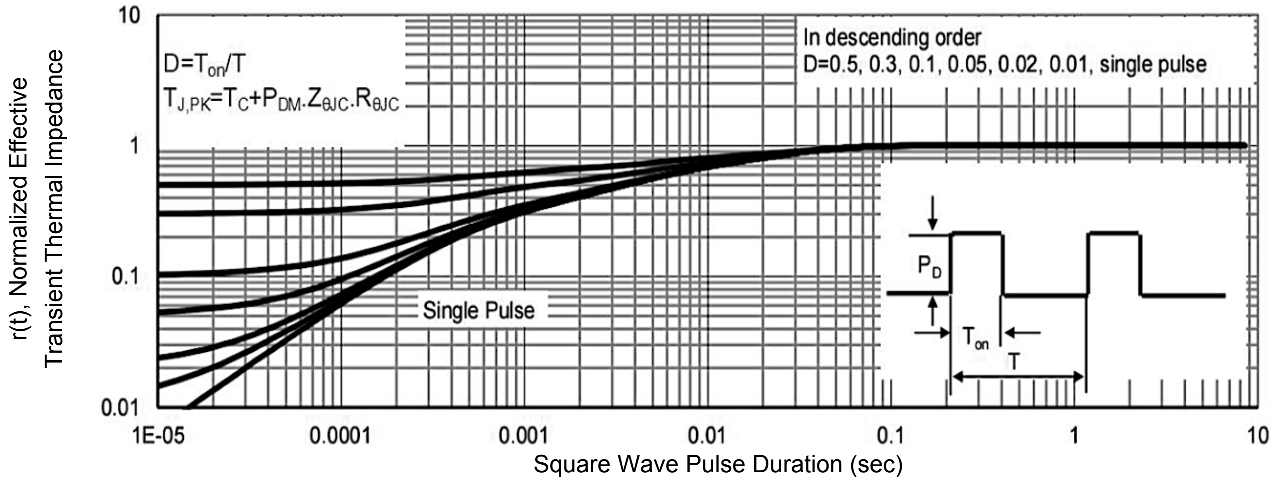
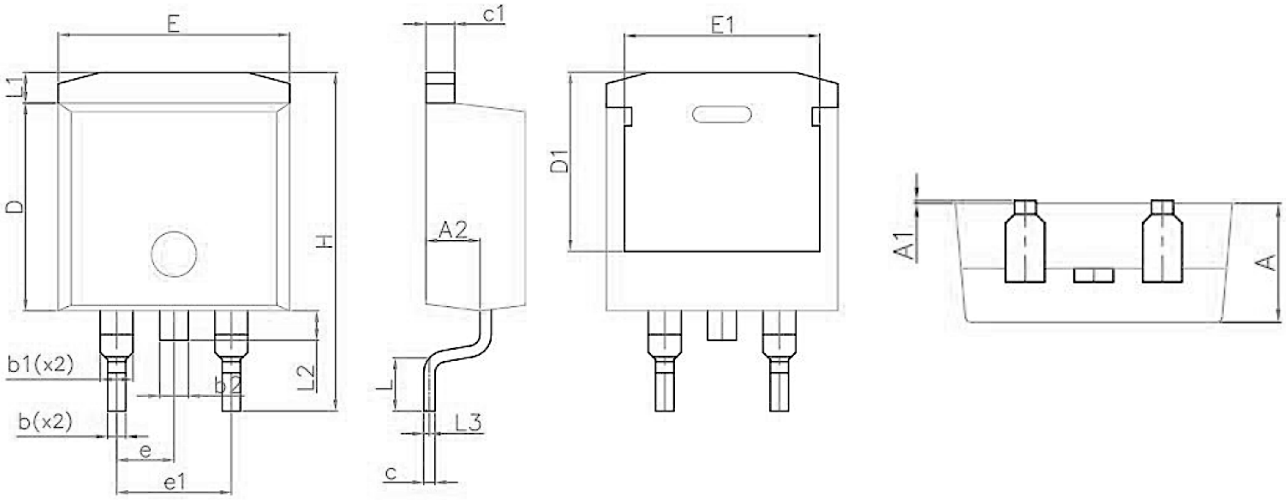


Figure 11. Normalized Maximum Transient Thermal Impedance

Package Outline Dimensions TO-263 (D^{2}PAK)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.20	4.60	0.165	0.181
A1	0.00	0.25	0.000	0.010
A2	2.20	2.60	0.087	0.102
b	0.70	0.90	0.028	0.035
b1	1.20	1.75	0.047	0.069
b2	1.17	1.37	0.046	0.054
c	0.40	0.60	0.016	0.024
c1	1.15	1.40	0.045	0.055
D	9.10	9.30	0.358	0.366
D1	7.63	8.23	0.300	0.324
E	10.05	10.45	0.396	0.411
E1	8.35	8.95	0.329	0.352
e	2.54 BSC		0.100 BSC	
e1	5.08 BSC		0.200 BSC	
H	14.61	15.88	0.575	0.625
L	1.78	2.79	0.070	0.110
L1	1.36 REF		0.054 REF	
L2	1.30 REF		0.051 REF	
L3	0.25 REF		0.010 REF	

Order Information

Device	Package	Marking	Packaging	SPQ
GSGT08298	TO-263 (D^{2}PAK)	T08298	Tape & Reel	800 Pcs / Reel

For more information, please contact us at: inquiry@goodarksemi.com