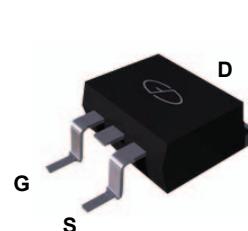
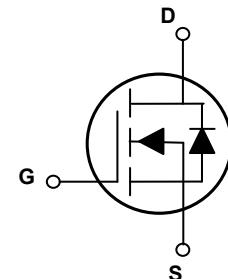


Main Product Characteristics

$V_{(BR)DSS}$	55V
$R_{DS(ON)}$	8.0mΩ (max.)
I_D	110A


 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 GSFT3205 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 ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Max.	Unit
Drain-Source Voltage	V_{DS}	55	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous, at Steady-State, ($T_c=25^\circ\text{C}$)	I_D	110	A
Drain Current-Continuous, at Steady-State, ($T_c=100^\circ\text{C}$)		70	
Drain Current-Pulsed	I_{DM}	390	A
Single Pulse Avalanche Energy ¹	E_{AS}	909	mJ
Power Dissipation ($T_c=25^\circ\text{C}$)	P_D	190	W
		1.27	W/ $^\circ\text{C}$
Junction-to-Ambient (PCB Mounted, Steady-State)	$R_{\theta JA}$	62.5	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	0.79	$^\circ\text{C}/\text{W}$
Operating Junction Temperature Range	T_J	-55 To +175	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 To +175	$^\circ\text{C}$

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
On / Off Characteristics						
Drain-Source Breakdown Voltage	$V_{(\text{BR})\text{DSS}}$	$V_{\text{GS}}=0\text{V}, I_D=250\mu\text{A}$	55	-	-	V
Drain-Source Leakage Current	I_{DSS}	$V_{\text{DS}}=55\text{V}, V_{\text{GS}}=0\text{V}$	-	-	1	μA
Gate-Source Leakage Current	I_{GSS}	$V_{\text{DS}}=0\text{V}, V_{\text{GS}}=20\text{V}$	-	-	100	nA
		$V_{\text{DS}}=0\text{V}, V_{\text{GS}}=-20\text{V}$	-	-	-100	
Static Drain-Source On-Resistance	$R_{\text{DS}(\text{ON})}$	$V_{\text{GS}}=10\text{V}, I_D=62\text{A}$	-	7.5	8.0	$\text{m}\Omega$
Gate Threshold Voltage	$V_{\text{GS}(\text{th})}$	$V_{\text{GS}}=V_{\text{DS}}, I_D=250\mu\text{A}$	2.0	-	3.5	V
Dynamic and Switching Characteristics						
Total Gate Charge ^{2,3}	Q_g	$V_{\text{DS}}=44\text{V}, I_D=62\text{A}, V_{\text{GS}}=10\text{V}$	-	67	-	nC
Gate-Source Charge ^{2,3}	Q_{gs}		-	13	-	
Gate-Drain ("Miller") Charge ^{2,3}	Q_{gd}		-	35	-	
Turn-On Delay Time ^{2,3}	$t_{\text{d}(\text{on})}$	$V_{\text{DD}}=28\text{V}, V_{\text{GS}}=10\text{V}, I_D=62\text{A}$	-	28	-	nS
Rise Time ^{2,3}	t_r		-	110	-	
Turn-Off Delay Time ^{2,3}	$t_{\text{d}(\text{off})}$		-	159	-	
Fall Time ^{2,3}	t_f		-	138	-	
Input Capacitance	C_{iss}	$V_{\text{DS}}=25\text{V}, V_{\text{GS}}=0\text{V}, F=1\text{MHz}$	-	2365	-	pF
Output Capacitance	C_{oss}		-	740	-	
Reverse Transfer Capacitance	C_{rss}		-	169	-	
Drain-Source Diode Characteristics and Maximum Ratings						
Continuous Source Current (Body Diode)	I_s	MOSFET symbol showing the integral reverse p-n junction diode.	-	-	110	A
Pulsed Source Current	I_{SM}	$V_{\text{GS}}=0\text{V}, I_s=110\text{A}$	-	-	390	A
Diode Forward Voltage	V_{SD}		-	-	1.3	V
Reverse Recovery Time ²	t_{rr}	$V_{\text{GS}}=0\text{V}, I_s=110\text{A}, \text{di}F/\text{dt}=100\text{A}/\mu\text{s}$	-	67	-	ns
Reverse Recovery Charge ²	Q_{rr}		-	0.17	-	μC

Note:

1. $L=0.3\text{mH}, V_{\text{DD}}=28\text{V}, I_{\text{AS}}=63\text{A}, R_G=25\Omega$, starting temperature $T_J=25^\circ\text{C}$.

2. Pulse test: pulse width $\leq 300\text{us}$, duty cycle $\leq 2\%$.

3. Essentially independent of operating temperature.

Typical Electrical and Thermal Characteristic Curves

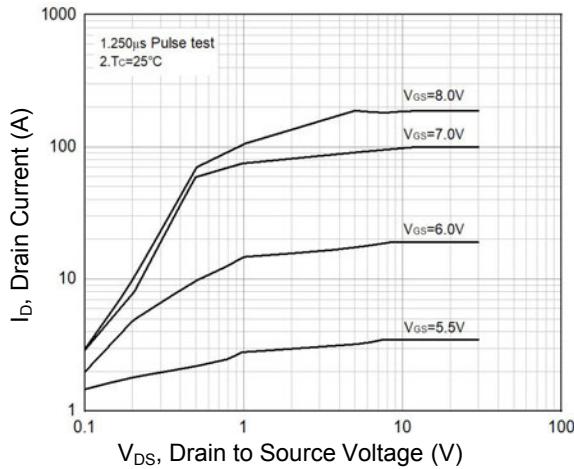


Figure 1. Typical Output Characteristics

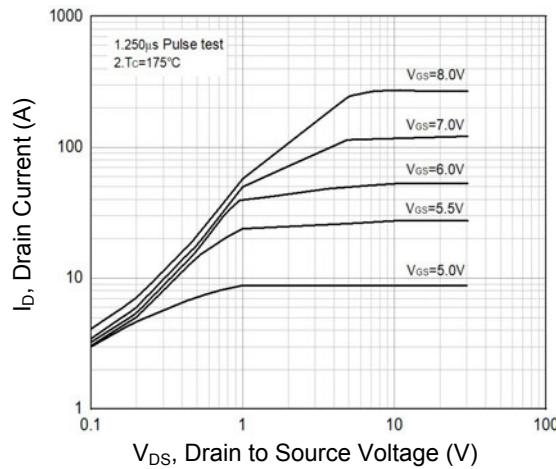


Figure 2. Typical Output Characteristics

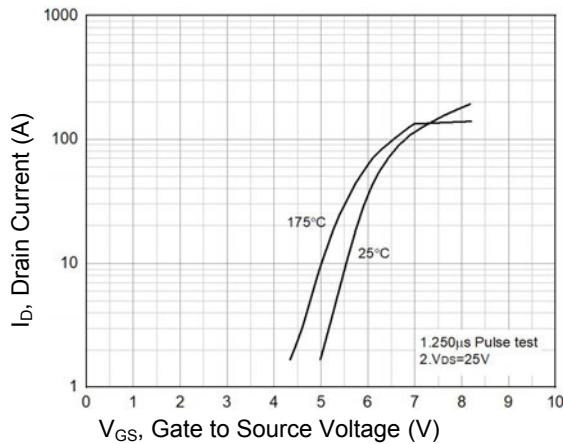


Figure 3. Transfer Characteristics

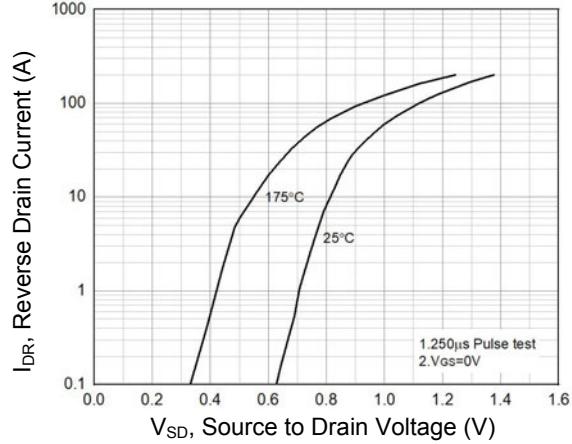


Figure 4. Body Diode Characteristics

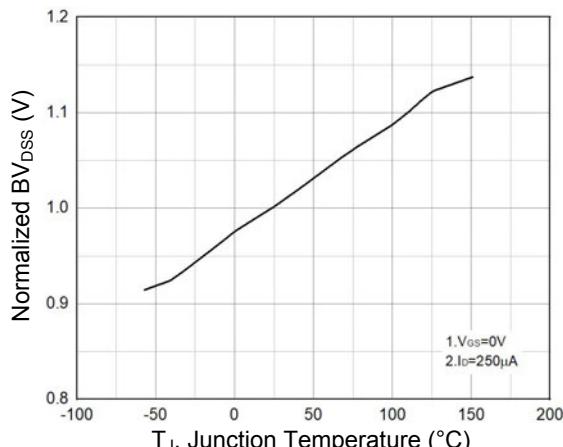


Figure 5. Normalized BV_{DSs} vs. Junction Temperature

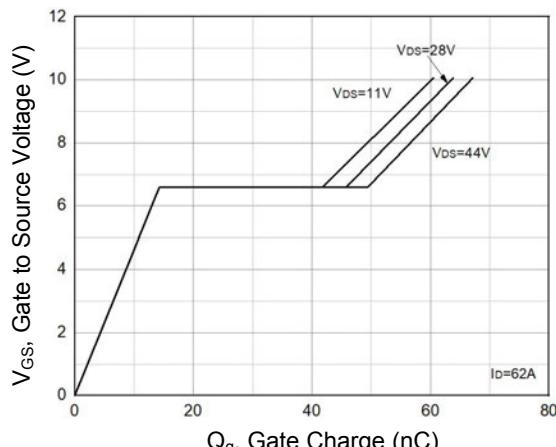


Figure 6. Gate Charge Characteristics

Typical Electrical and Thermal Characteristic Curves

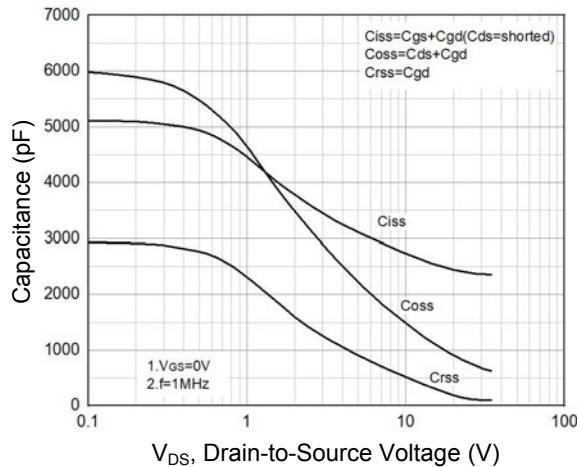


Figure 7. Capacitance Characteristics

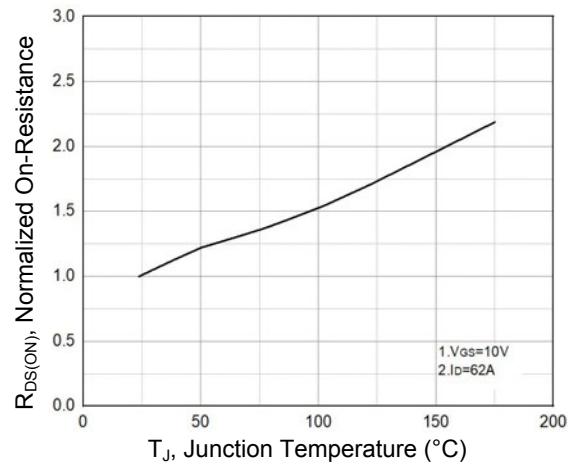


Figure 8. Normalized On-Resistance vs. Junction Temperature

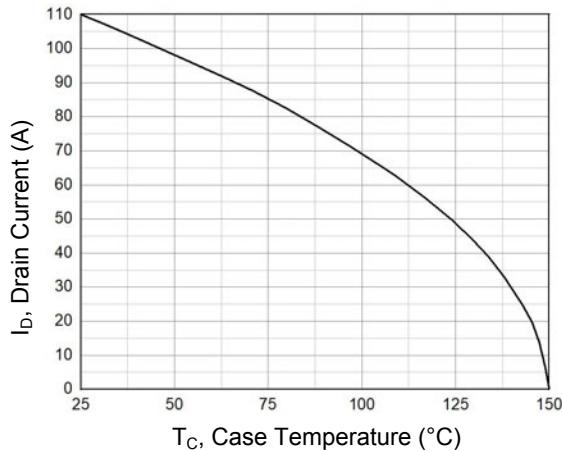


Figure 9. Drain Current vs. T_c

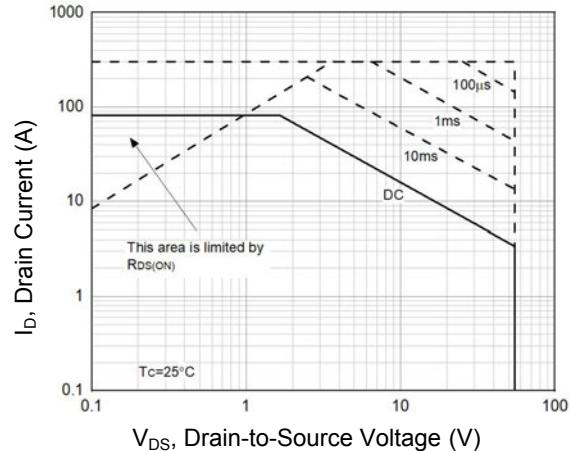
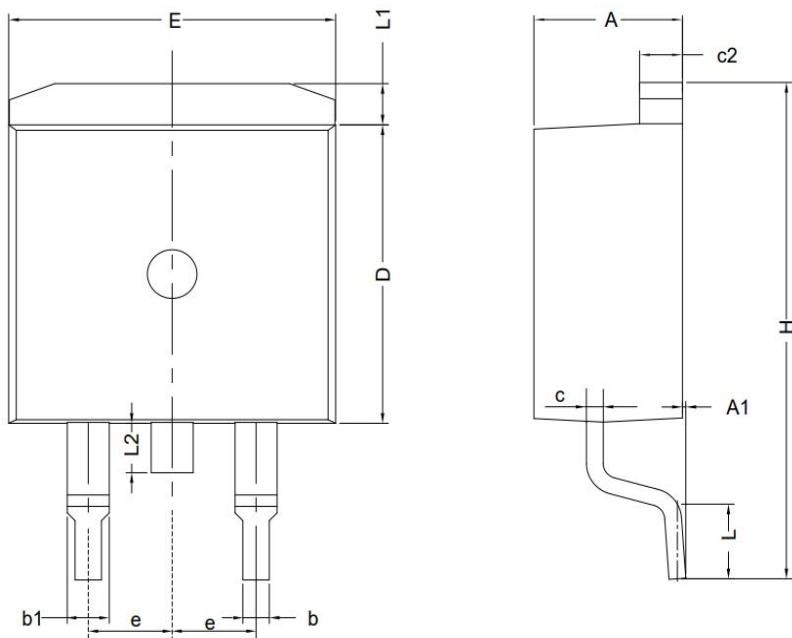


Figure 10. Safe Operation Area

Package Outline Dimensions TO-263 (D²PAK)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.300	4.720	0.169	0.186
A1	0.000	0.250	0.000	0.010
b	0.710	0.910	0.028	0.036
b1	1.170	1.500	0.046	0.059
c	0.300	0.600	0.012	0.024
c2	1.170	1.370	0.046	0.054
D	8.500	9.350	0.335	0.368
E	9.800	10.450	0.386	0.411
e	2.540 BSC		0.100 BSC	
H	14.700	15.750	0.579	0.620
L	2.000	2.740	0.079	0.108
L1	1.120	1.420	0.044	0.056
L2	-	1.750	-	0.069