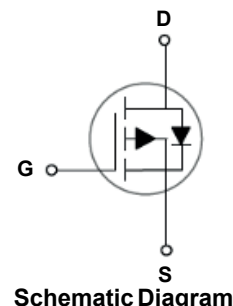
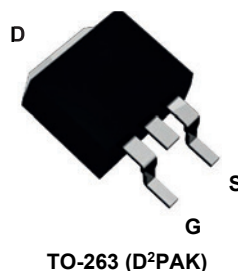


Main Product Characteristics

BV_{DSS}	-150V
$R_{DS(ON)}$	360mΩ (Max.)
I_D	-10A



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 GSFT1510 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	Rating	Units
Drain-Source Voltage	V_{DS}	-150	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous ($T_C=25^{\circ}\text{C}$)	I_D	-10	A
Drain Current-Continuous ($T_C=100^{\circ}\text{C}$)		-6.3	A
Drain Current-Pulsed ¹	I_{DM}	-35	A
Single Pulse Avalanche Energy ²	E_{AS}	68.4	mJ
Single Pulse Avalanche Current ²	I_{AS}	-37	A
Power Dissipation ($T_C=25^{\circ}\text{C}$)	P_D	106	W
Power Dissipation-De-rate Above 25°C		0.85	W/ $^{\circ}\text{C}$
Max. Thermal Resistance Junction to Ambient	$R_{\theta JA}$	62	$^{\circ}\text{C}/\text{W}$
Max. Thermal Resistance Junction to Case	$R_{\theta JC}$	1.18	$^{\circ}\text{C}/\text{W}$
Storage Temperature Range	T_{STG}	-55 to +150	$^{\circ}\text{C}$
Operating Junction Temperature Range	T_J	-55 to +150	$^{\circ}\text{C}$

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	BV _{DSS}	V _{GS} =0V, I _D =-250μA	-150	-	-	V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =-150V, V _{GS} =0V, T _J =25°C	-	-	-1	μA
		V _{DS} =-120V, V _{GS} =0V, T _J =85°C	-	-	-10	μA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =-10V, I _D =-8A	-	295	360	mΩ
Gate Threshold Voltage	V _{GS(th)}	V _{GS} =V _{DS} , I _D =-250μA	-2	-3	-4	V
Dynamic and Switching Characteristics						
Total Gate Charge ^{3,4}	Q _g	V _{DS} =-75V, V _{GS} =-10V, I _D =-5A	-	15.5	25	nC
Gate-Source Charge ^{3,4}	Q _{gs}		-	3.1	5	
Gate-Drain Charge ^{3,4}	Q _{gd}		-	4.2	7	
Turn-On Delay Time ^{3,4}	t _{d(on)}	V _{DD} =-75V, V _{GS} =-10V, R _G =6Ω, I _D =-5A	-	25	40	nS
Rise Time ^{3,4}	t _r		-	12	20	
Turn-Off Delay Time ^{3,4}	t _{d(off)}		-	40	60	
Fall Time ^{3,4}	t _f		-	22	35	
Input Capacitance	C _{iss}	V _{DS} =-75V, V _{GS} =0V, F=1MHz	-	740	1100	pF
Output Capacitance	C _{oss}		-	45	70	
Reverse Transfer Capacitance	C _{rss}		-	24	40	
Guaranteed Avalanche Energy						
Single Pulse Avalanche Energy	E _{AS}	V _{DD} =-50V, L=0.1mH, I _{AS} =-27A	36.4	-	-	mJ
Source-Drain Ratings and Characteristics						
Continuous Source Current	I _S	V _G =V _D =0V, Force Current	-	-	-10	A
Pulsed Source Current	I _{SM}		-	-	-20	A
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =-1A, T _J =25°C	-	-	-1	V
Reverse Recovery Time	T _{rr}	V _R =-100V, I _S =-10A, di/dt=100A/μs, T _J =25°C	-	65	-	nS
Reverse Recovery Charge	Q _{rr}		-	155	-	nC

Notes:

1. Repetitive rating: Pulsed width limited by maximum junction temperature.
2. $V_{DD}=-50V, V_{GS}=-10V, L=0.1\text{mH}, I_{AS}=-37A$, starting $T_J=25^{\circ}\text{C}$.
3. The data tested by pulsed, pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
4. Essentially independent of operating temperature.

Typical Electrical and Thermal Characteristic Curves

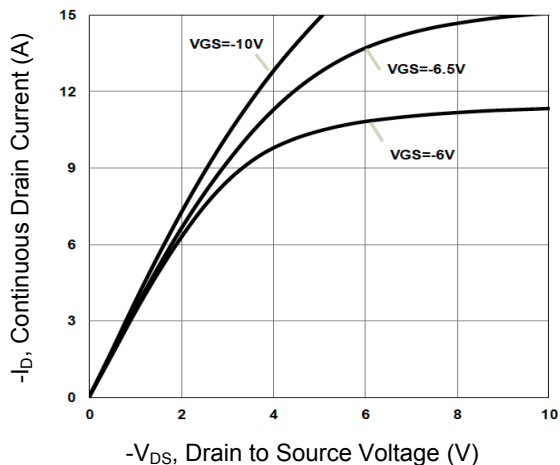


Figure 1. Typical Output Characteristics

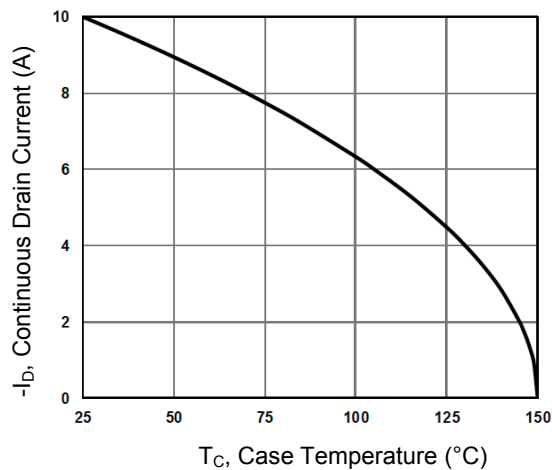


Figure 2. Continuous Drain Current vs. T_C

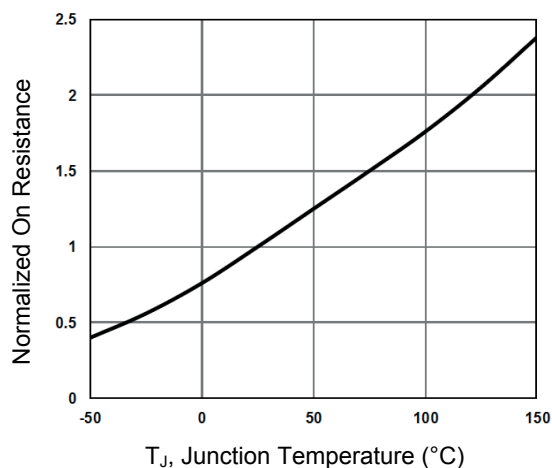


Figure 3. Normalized $R_{DS(ON)}$ vs. T_J

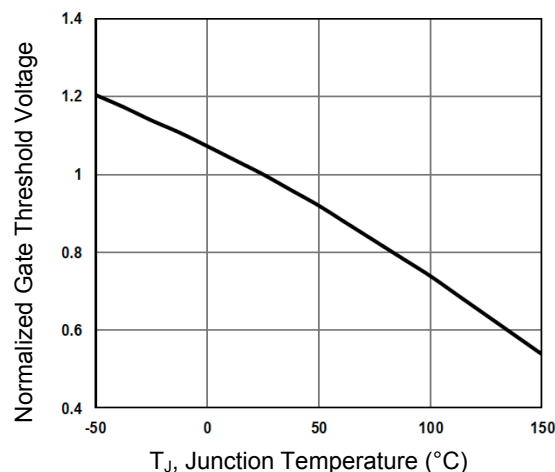


Figure 4. Normalized V_{th} vs. T_J

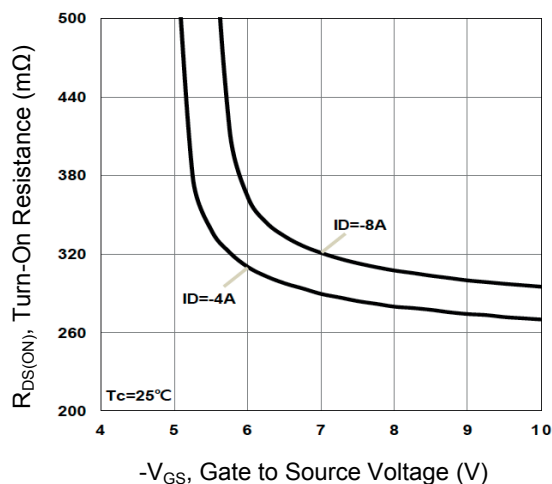


Figure 5. Turn-On Resistance vs. V_{GS}

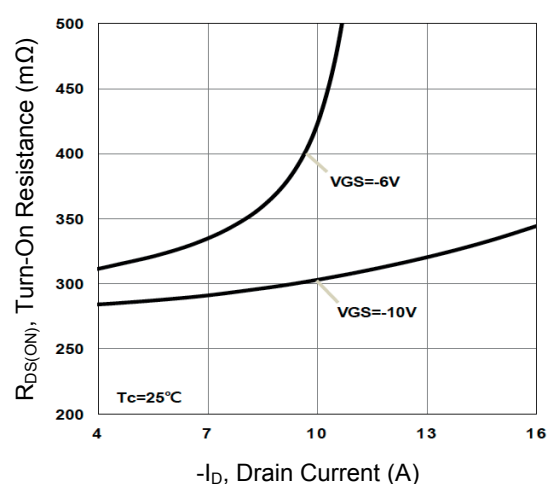


Figure 6. Turn-On Resistance vs. I_D

Typical Electrical and Thermal Characteristic Curves

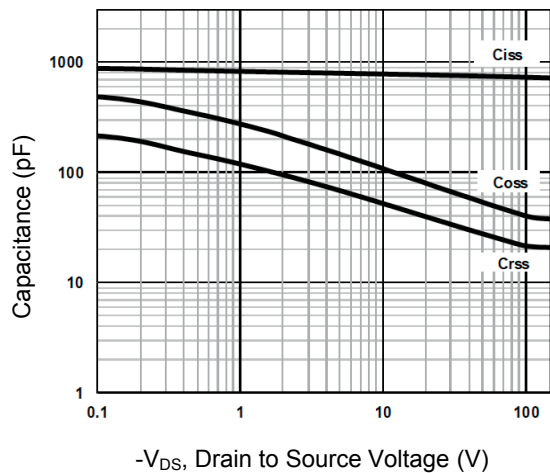


Figure 7. Capacitance Characteristics

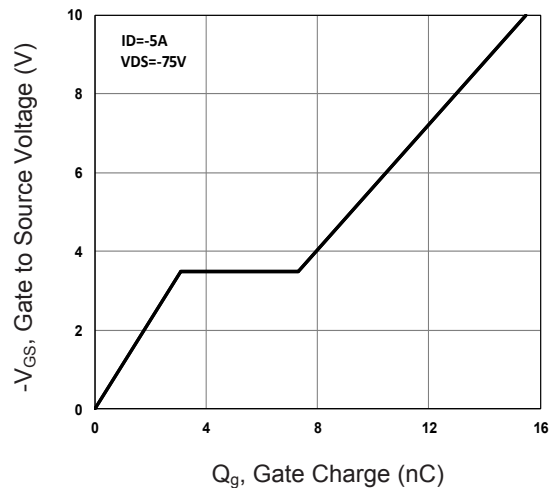


Figure 8. Gate Charge Characteristics

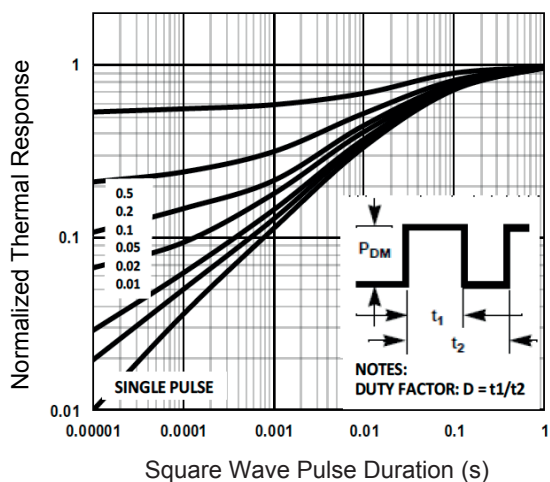


Figure 9. Normalized Transient Impedance

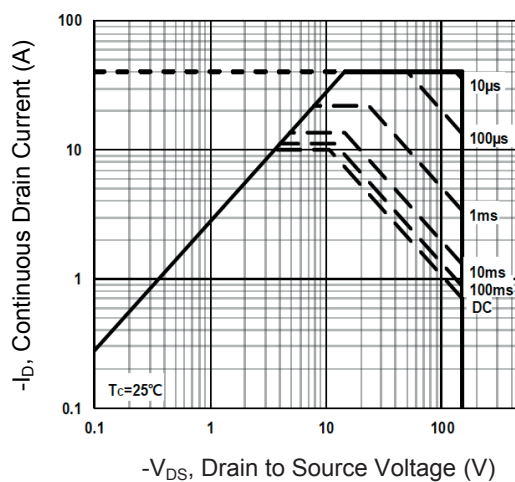
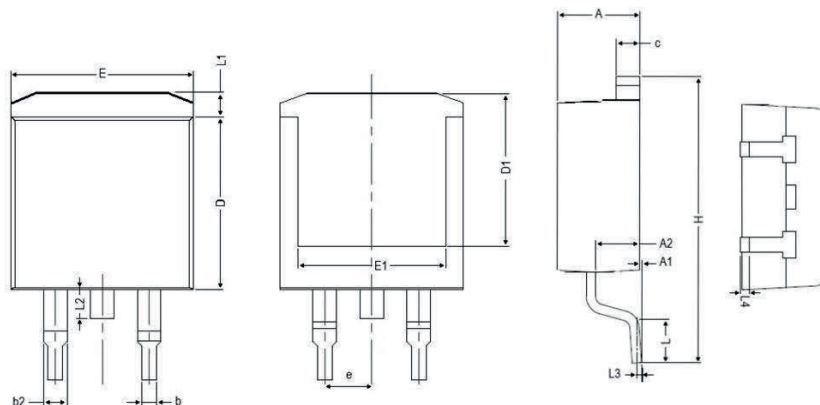


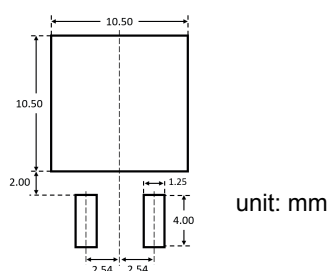
Figure 10. Maximum Safe Operation Area

Package Outline Dimensions TO-263 (D²PAK)



Symbol	Dimensions in Millimeters		Dimensions in Inches	
	Min	Max	Min	Max
A	4.200	4.850	0.165	0.191
A1	0.000	0.300	0.000	0.012
A2	2.200	2.900	0.087	0.114
b	0.700	0.950	0.028	0.037
b2	1.000	1.700	0.039	0.067
c	1.150	1.450	0.045	0.057
D	8.350	9.500	0.329	0.374
D1	6.400	9.150	0.252	0.360
E	9.600	10.500	0.378	0.413
E1	6.850	8.900	0.270	0.350
e	2.540 BSC		0.100 BSC	
H	14.600	15.900	0.575	0.626
L	1.700	2.800	0.067	0.110
L1	1.050	1.700	0.041	0.067
L2	1.300	2.100	0.051	0.083
L3	0.250 BSC		0.010 BSC	
L4	0.200	0.750	0.008	0.030

Recommended Pad Layout



Order Information

Device	Package	Marking	Carrier	Quantity
GSFT1510	TO-263 (D ² PAK)	PDH15P15	Tape & Reel	800pcs / Reel

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