

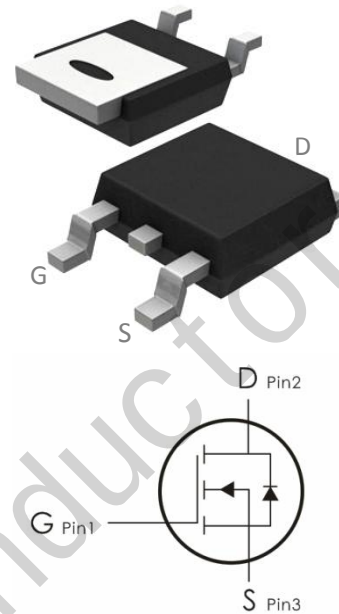
Description:

This N-Channel MOSFET uses advanced SGT technology and design to provide excellent $R_{DS(on)}$ with low gate charge.

It can be used in a wide variety of applications.

Features:

- 1) $V_{DS}=100V, I_D=45A, R_{DS(on)} < 17m\Omega @ V_{GS}=10V$
- 2) Low gate charge.
- 3) Green device available.
- 4) Advanced high cell density trench technology for ultra low $R_{DS(on)}$.
- 5) Excellent package for good heat dissipation.



Absolute Maximum Ratings: ($T_C=25^\circ C$ unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	100	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Continuous Drain Current- $t_C=25^\circ C$	45	A
	Continuous Drain Current- $T_C=100^\circ C$	28.5	A
I_{DM}	Pulsed drain current ¹	180	A
E_{AS}	Avalanche energy ²	81	mJ
P_D	Continuous-Source Current ³	72	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150	$^\circ C$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance, Junction to Case	1.7	$^\circ C/W$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient ⁴	50	

Electrical Characteristics: ($T_c=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250 μ A	100	---	---	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{GS} =0V, V _{DS} =100V	---	---	1	μ A
I _{GSS}	Gate-Source Leakage Current	V _{GS} =± 20V, V _{DS} =0A	---	---	± 100	nA
On Characteristics						
V _{GS(th)}	GATE-Source Threshold Voltage	V _{GS} =V _{DS} , I _D =250 μ A	2	2.8	4	V
R _{DS(ON)}	Drain-Source On Resistance	V _{GS} =10V, I _D =20A	---	14	17	m Ω
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =50V, V _{GS} =0V, f=1MHz	---	1134	---	pF
C _{oss}	Output Capacitance		---	398	---	
C _{rss}	Reverse Transfer Capacitance		---	17	---	
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time	V _{DS} =50V, I _D =25A, V _{GS} =10V, R _G =2.5Ω	---	39.1	--	ns
t _r	Rise Time		---	10	---	ns
t _{d(off)}	Turn-Off Delay Time		---	53.1	---	ns
t _f	Fall Time		---	15.7	---	ns
Q _g	Total Gate Charge	V _{GS} =10V, V _{DS} =50V, I _D =25A	---	15	---	nC
Q _{gs}	Gate-Source Charge		---	5.5	---	nC
Q _{gd}	Gate-Drain “Miller” Charge		---	2.3	---	nC
Drain-Source Diode Characteristics						
V _{SD}	Source-Drain Diode Forward Voltage	V _{GS} =0V, I _S =20A	---	---	1.3	V
I _S	Continuous Drain Current	V _D =V _G =0V	---	---	45	A
I _{SM}	Pulsed drain current	V _D =V _G =0V	---	---	180	A
trr	Reverse Recovery Time	V _{GS} =0V, I _{DS} =20 A	---	42	---	nS
qrr	Reverse Recovery Charge	dI _{SD} /dt = 100 A/ μ s	---	39.8	---	nC

Notes:

1. Repetitive rating; pulse width limited by max. junction temperature.
2. VDD=50V, RG=25Ω, L=0.5mH, IAS=18A,.
3. Pd is based on max. junction temperature, using junction-case thermal resistance.
4. The value of RθJA is measured with the device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with TA =25°C. Power dissipation PDSM is based on RθJA ≤ 10s and the maximum allowed junction temperature of 150°C. The value in any given application depends on the user's specific board design.

Typical Characteristics: (T_C=25°C unless otherwise noted)

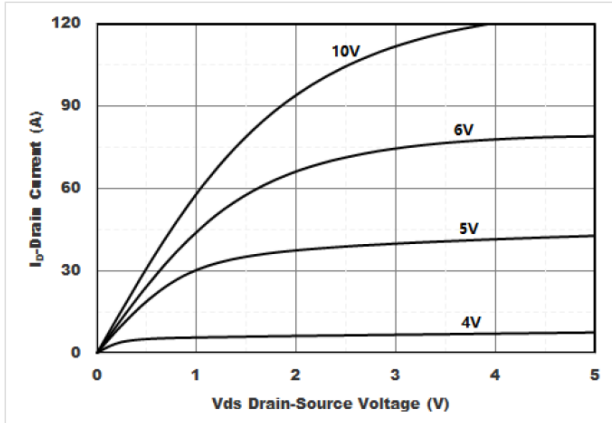


Figure1. Output Characteristics

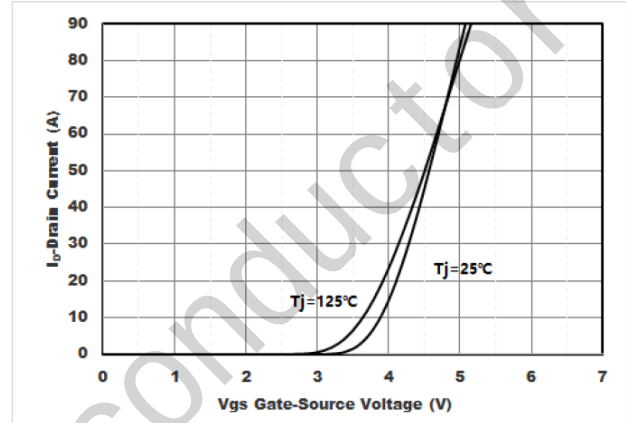


Figure2. Transfer Characteristics

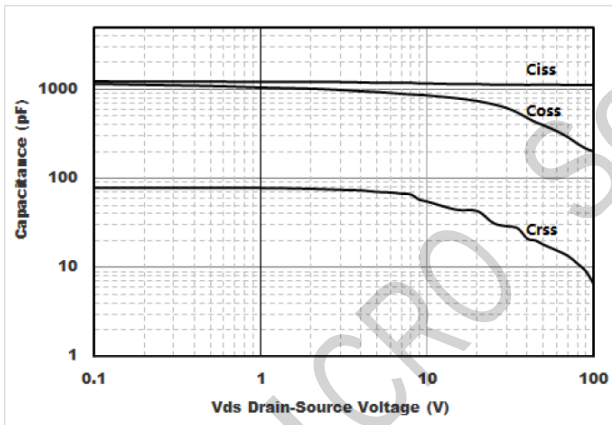


Figure3. Capacitance Characteristics

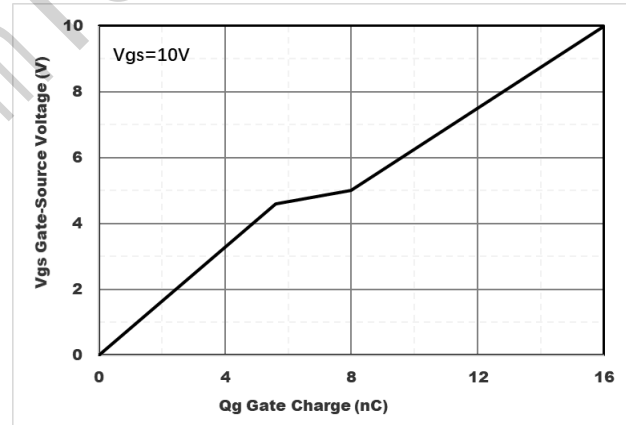


Figure4. Gate Charge

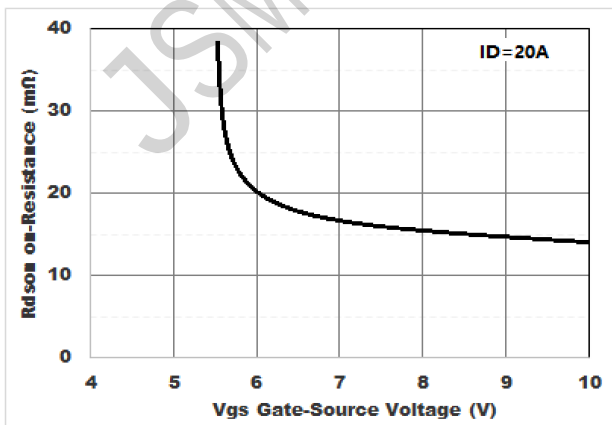


Figure5. : On-Resistance vs. Drain Current and Gate Voltage

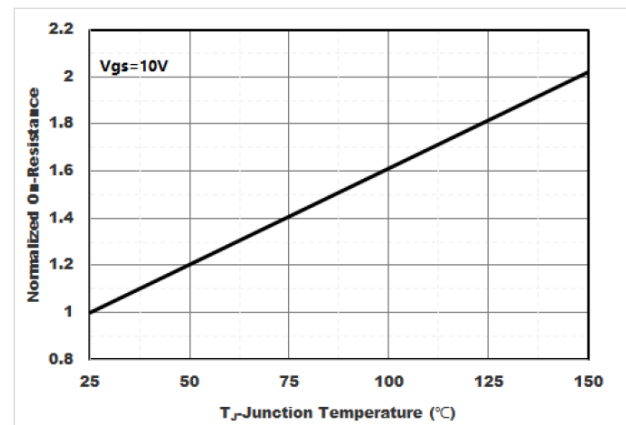


Figure6.Normalized On-Resistance

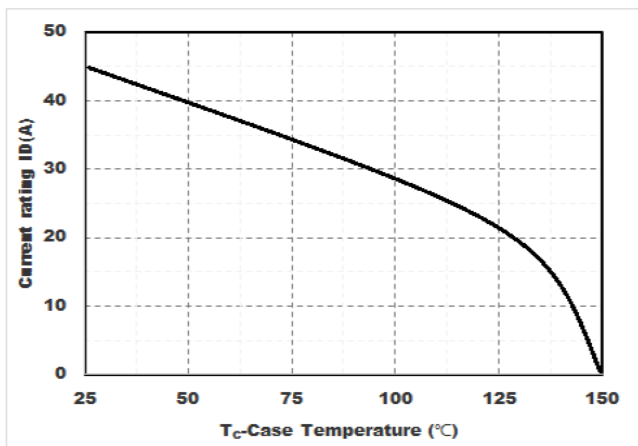


Figure7. Drain current

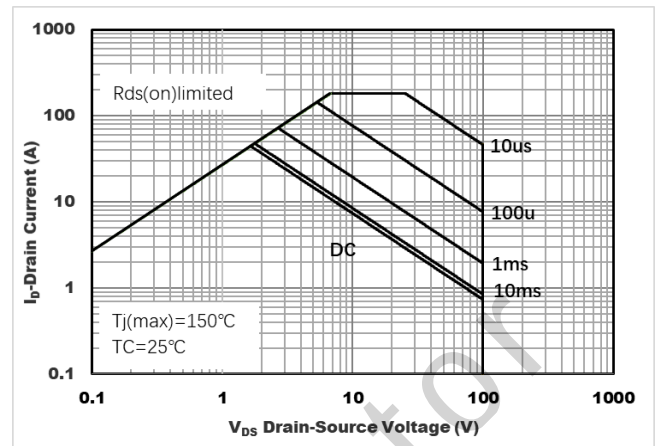


Figure8.Safe Operation Area

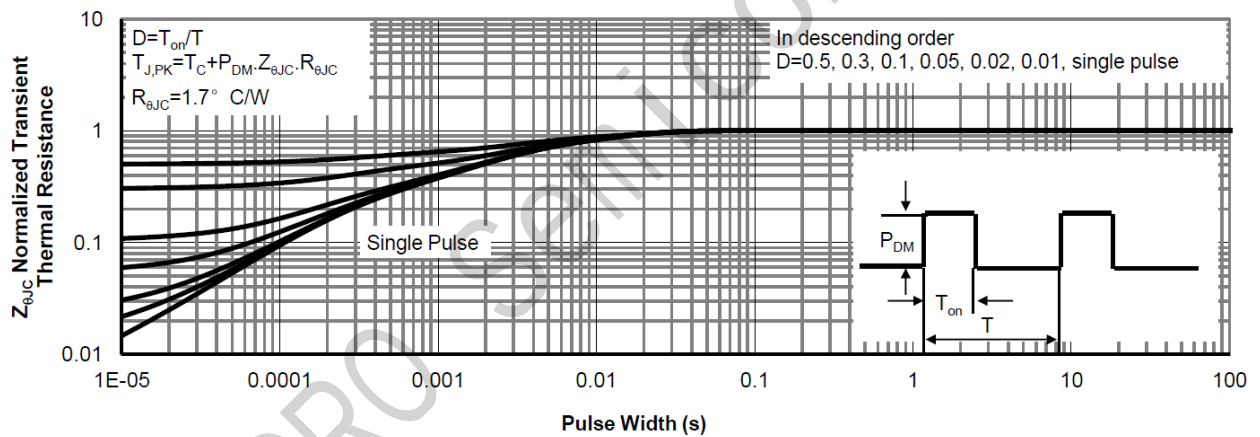


Figure9.Normalized Maximum Transient thermal impedance

外形尺寸图 / Package Dimensions

