

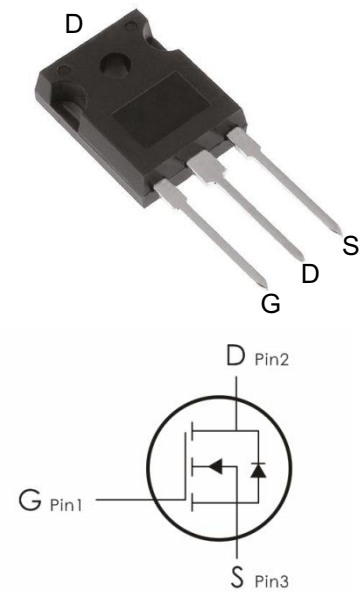
Description:

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) $V_{DS}=150V, I_D=150A, R_{DS(ON)}<5.5m\ \Omega$, @ $V_{GS(ON)}=10V$
- 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: ($T_C=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	150	V
V_{GS}	Gate-Source Voltage	± 25	V
I_D	Continuous Drain Current- $T_C=25^\circ\text{C}^1$	150	A
	Continuous Drain Current- $T_C=100^\circ\text{C}^1$	96	
E_{AS}	Single Pulse Avalanche Energy	1250	mJ
P_D	Power Dissipation	208	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150	$^\circ\text{C}$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta Jc}$	Thermal Resistance, Junction to Case ²	0.6	$^\circ\text{C}/\text{W}$
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient ²	40	

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	$V_{GS}=0V, I_D=250\ \mu\text{A}$	150	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{GS}=0V, V_{DS}=120V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 25V, V_{DS}=0A$	---	---	± 100	nA
On Characteristics						
$V_{GS(th)}$	GATE-Source Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\ \mu\text{A}$	2	---	4	V
$R_{DS(on)}$	Drain-Source On Resistance ⁴	$V_{GS}=10V, I_D=50A$	---	4.5	5.5	$\text{m}\Omega$
		$V_{GS}=6V, I_D=30A$	---	6.0	7.0	$\text{m}\Omega$
Dynamic Characteristics						
C_{iss}	Input Capacitance ⁵	$V_{DS}=75V, V_{GS}=0V, f=1\text{MHz}$	---	9018	---	μF
C_{oss}	Output Capacitance ⁵		---	582	---	
C_{rss}	Reverse Transfer Capacitance ⁵		---	62	---	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	$V_{DD}=75V, I_D=50A,$ $R_G=3.9\ \Omega$ (note3,4)	---	22	---	ns
t_r	Rise Time		---	65	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	88	---	ns
t_f	Fall Time		---	69	---	ns
Q_g	Total Gate Charge	$V_{GS}=10V, V_{DS}=75V,$ $I_D=50A$ (note3,4)	---	130	---	nC
Q_{gs}	Gate-Source Charge		---	46	---	nC
Q_{gd}	Gate-Drain "Miller" Charge		---	23	---	nC
Drain-Source Diode Characteristics						
V_{SD}	Diode Forward Voltage ⁴	$I_S=50A$	---	---	1.3	V

Trr	Reverse Recovery Time	$I_S = 50A; V_{GS} = 0V,$ $di/dt = 100 A/\mu s(\text{note3})$	---	112	---	NS
Qrr	Reverse Recovery Charge		---	475	---	Nc

Notes:

1. Pulse width $\leq 300 \mu s$, duty cycle $\leq 2 \%$
2. Surface Mounted on minimum footprint pad area.
3. Limited by bonding wire
4. Pulse test ; pulse width $\leq 300 \mu s$, duty cycle $\leq 2\%$
5. Guaranteed by design, not subject to production testing

Typical Characteristics: ($T_c = 25^\circ C$ unless otherwise noted)

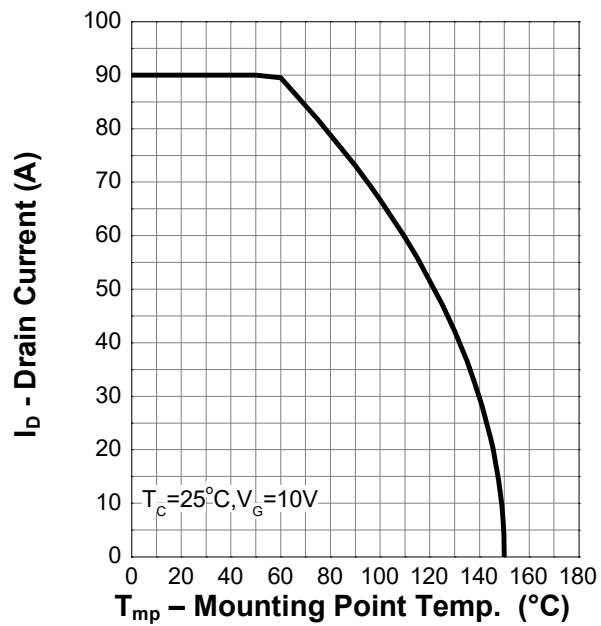
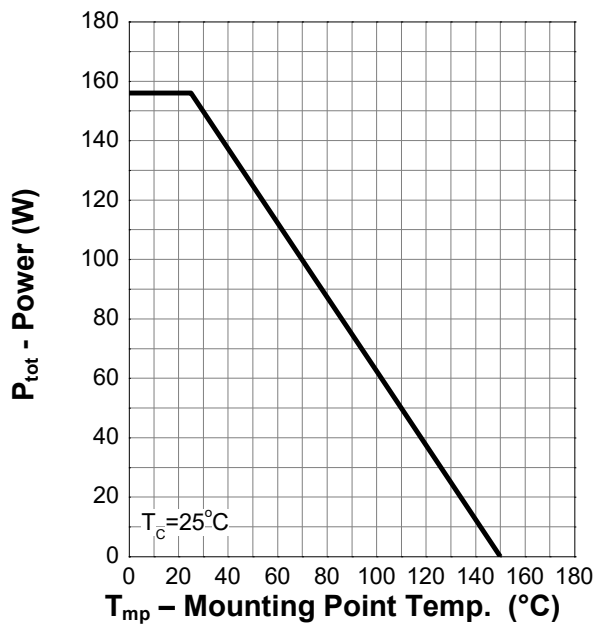


FIG 1. Power Capability

FIG 2. Current Capability

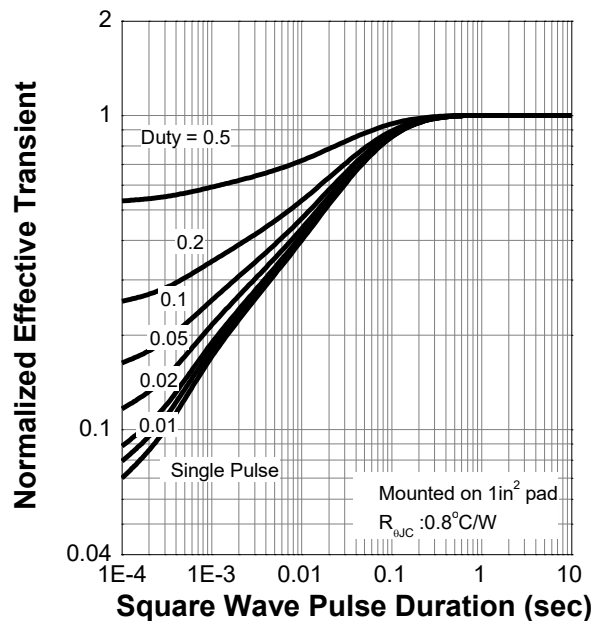
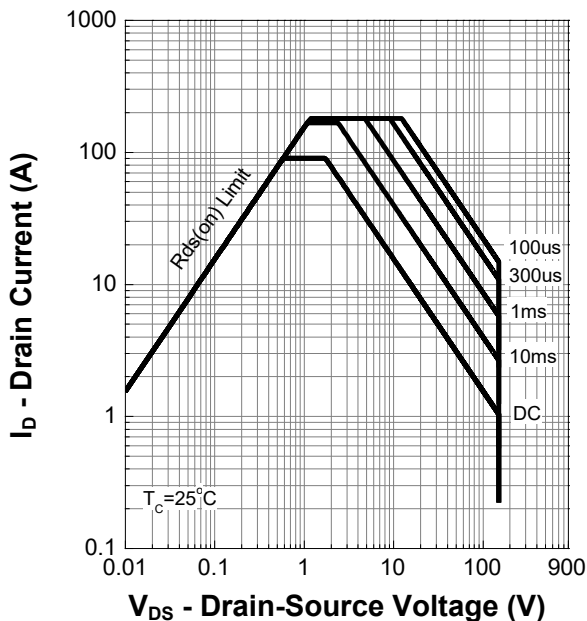


FIG 3. Safe Operating Area

FIG 4. Transient Thermal Impedance

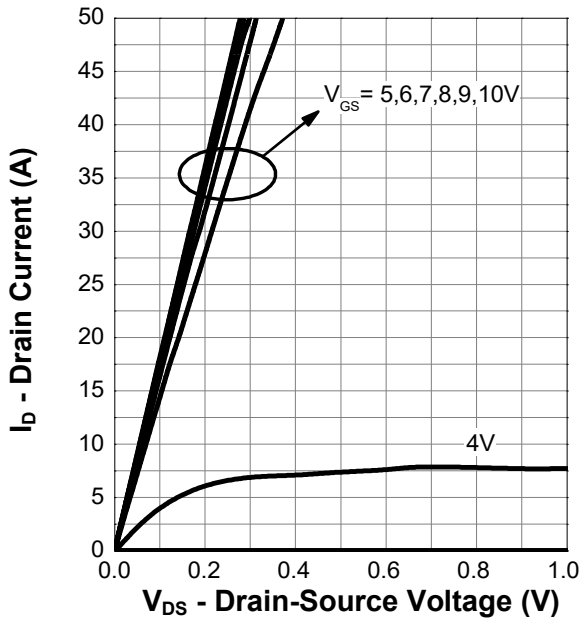


FIG 5. Output Characteristics

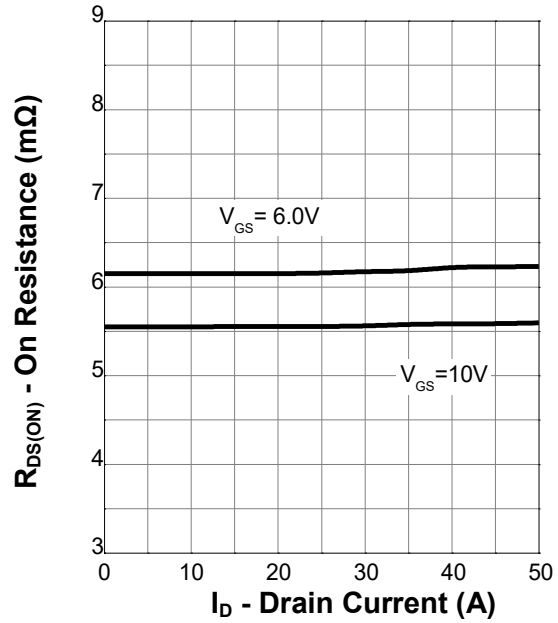


FIG 6. On Resistance

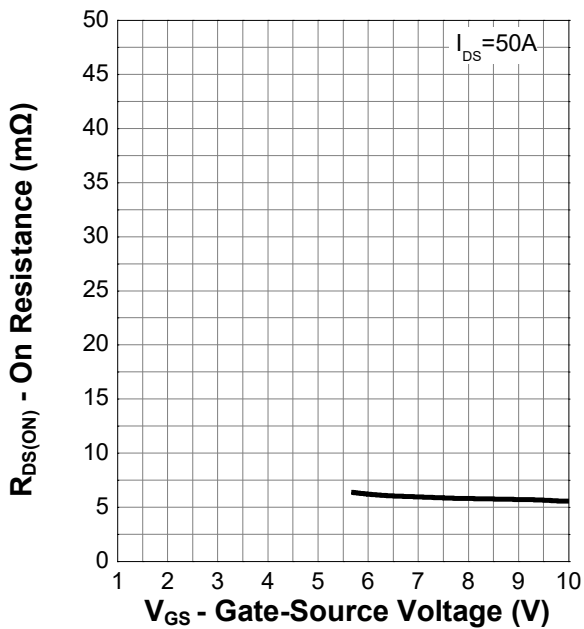


FIG 7. Transfer Characteristics

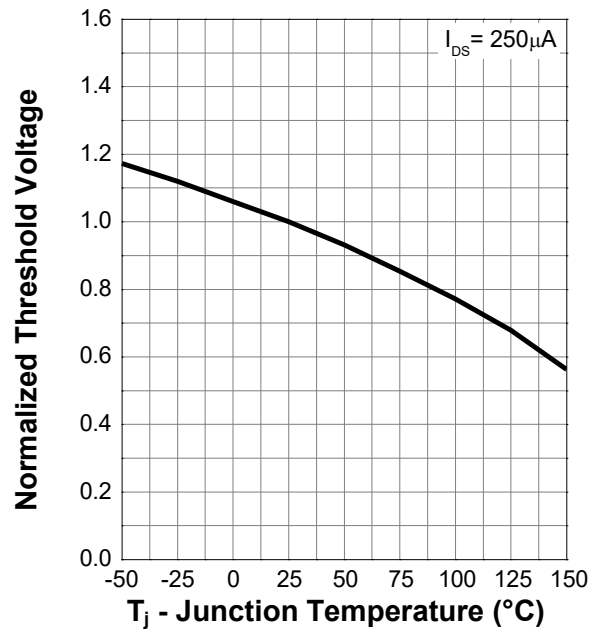


FIG 8. Normalized Threshold Voltage

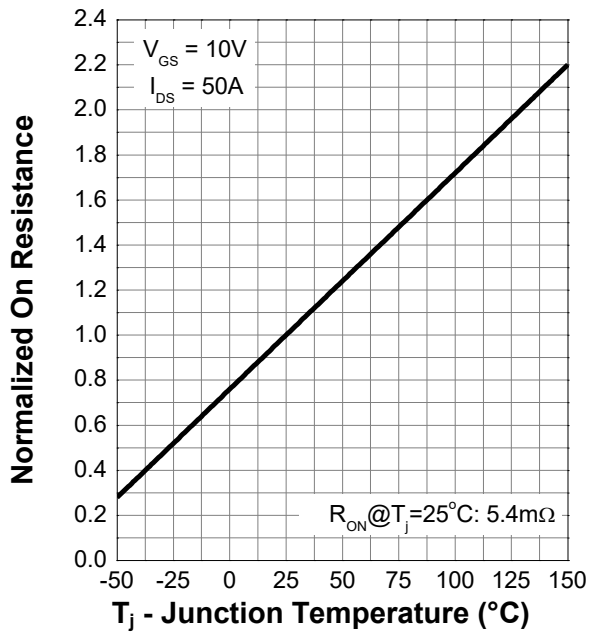


FIG 9. Normalized On Resistance

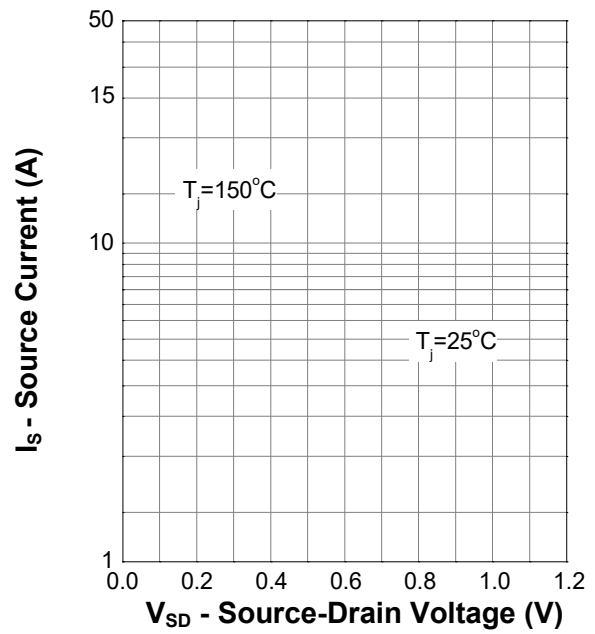


FIG 10. Diode Forward Current

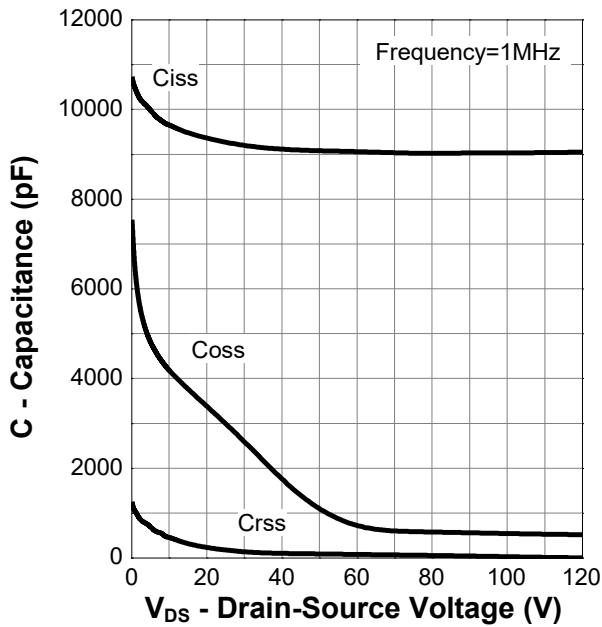


FIG 11. Capacitance

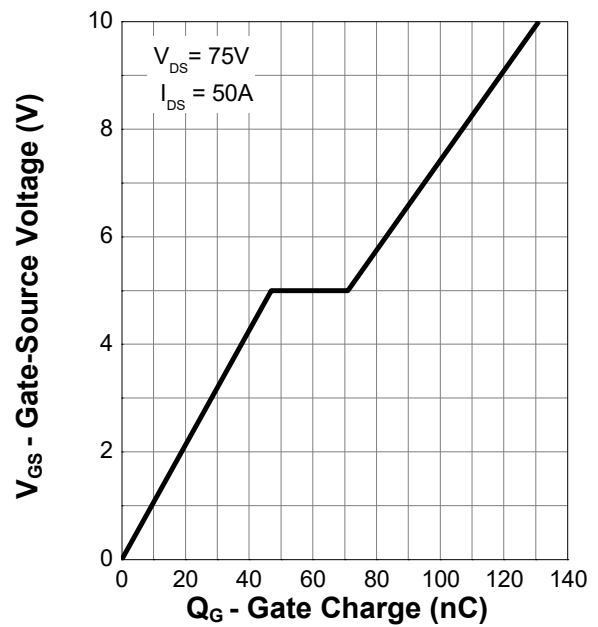


FIG 12. Gate Charge

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