



General Description

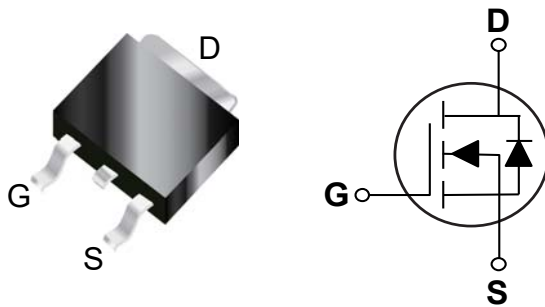
These N-Channel enhancement mode power field effect transistors are using trench DMOS technology. This advanced technology has been especially tailored to minimize on-state resistance, provide superior switching performance, and withstand high energy pulse in the avalanche and commutation mode. These devices are well suited for high efficiency fast switching applications.

BV_{DSS}	$R_{DS(ON)}$	I_D
100 V	3.9 m Ω	110 A

Features

- $R_{DS(ON)} \leq 3.9m\Omega @ V_{GS}=10V$
- Fast switching
- Green Device Available

TO-263 Pin Configuration



Applications

- Switching applications
- Power Management in power tool
- AC/DC synchronous rectification

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

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	100	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Drain Current - Continuous ($T_C=25^\circ C$)	110	A
I_{DM}	Drain Current - Pulsed (NOTE 1)	440	A
EAS	Single Pulse Avalanche Energy (NOTE 2)	495	mJ
P_D	Power Dissipation ($T_C=25^\circ C$)	250	W
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ C$
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ C$

Thermal Characteristics

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JC}$	Thermal Resistance Junction to Case	---	1	$^\circ C/W$

**Electrical Characteristics (T_J=25°C, unless otherwise noted)****Off Characteristics**

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	100	---	---	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =80V, V _{GS} =0V	---	---	1	uA
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±20V, V _{DS} =0V	---	---	±100	nA

On Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =10V, I _D =2A	---	---	3.9	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	2.0	---	4.5	V

Dynamic and switching Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
Q _g	Total Gate Charge	V _{DS} =50V, V _{GS} =10V, I _D =110A	---	117	---	nC
Q _{gs}	Gate-Source Charge		---	47	---	
Q _{gd}	Gate-Drain Charge		---	26	---	
T _{d(on)}	Turn-On Delay Time	V _{DD} =50V, V _{GS} =10V, R _G =4.7Ω, I _D =55A	---	33	---	nS
T _r	Rise Time		---	57	---	
T _{d(off)}	Turn-Off Delay Time		---	72	---	
T _f	Fall Time		---	33	---	
C _{iss}	Input Capacitance	V _{DS} =50V, V _{GS} =0V, f=1MHz	---	8115	---	pF
C _{oss}	Output Capacitance		---	1510	---	
C _{riss}	Reverse Transfer Capacitance		---	67	---	

Drain-Source Diode Characteristics and Ratings

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current	V _G =V _D =0V, Force Current	---	---	110	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =2A	---	---	1.2	V

NOTES :

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. V_{DD}=50V, I_D=30A, Starting T_J=25°C.
3. The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%.



Characteristics Curves

FIG. 1-Normalized $V_{GS(th)}$ vs T_J

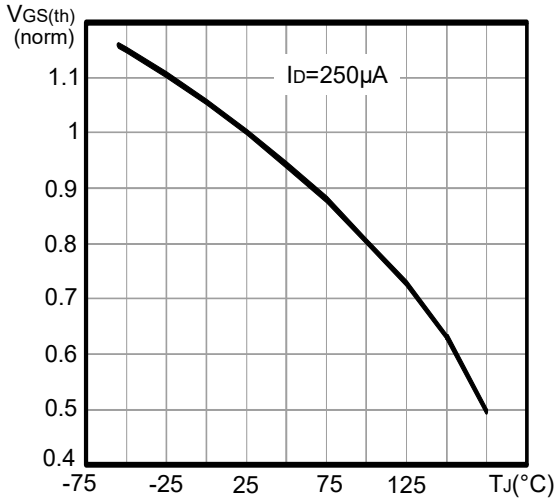


FIG. 2-Normalized $R_{DS(on)}$ vs T_J

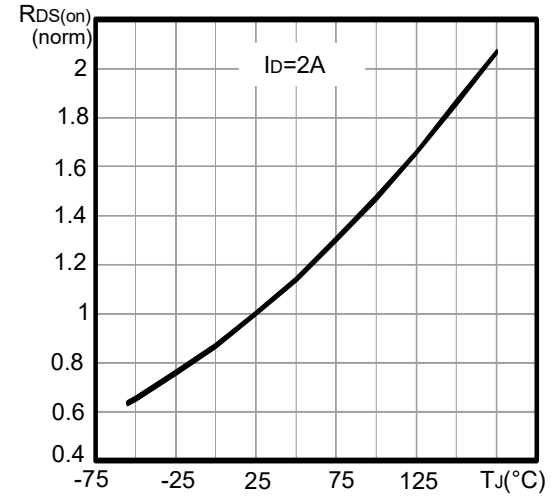


FIG. 3-Normalized $V_{(BR)DSS}$ vs T_J

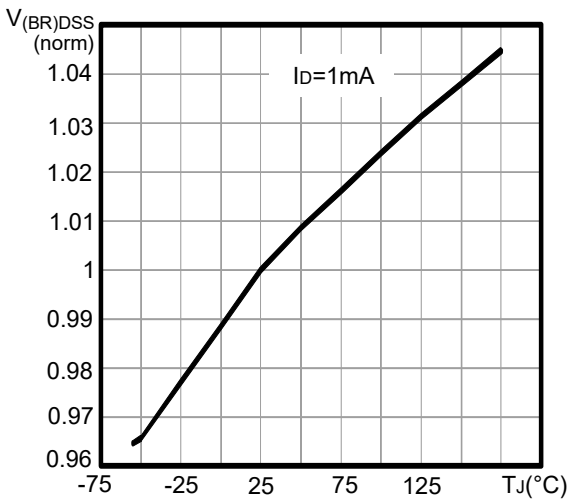
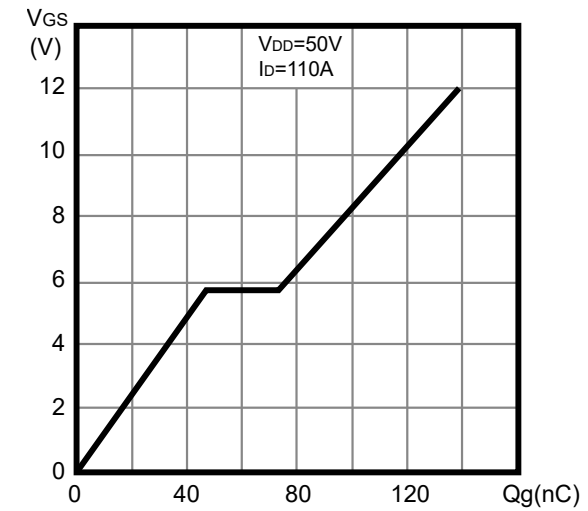
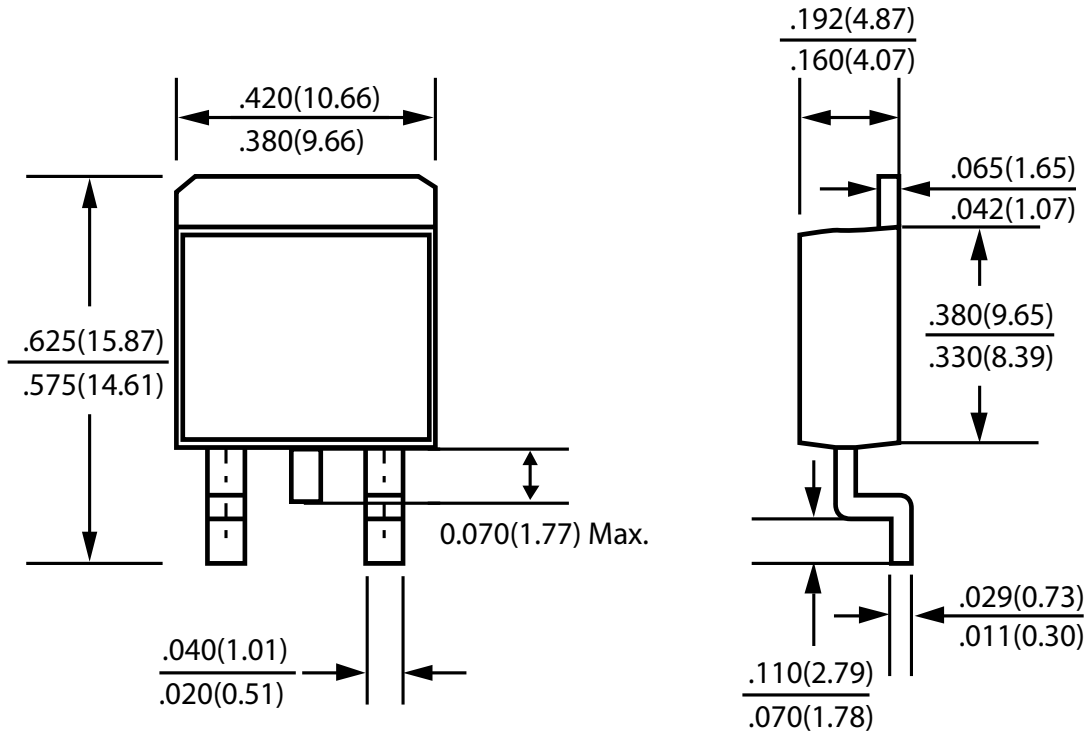


FIG. 4-Gate Charge Characteristics





Package Outline Dimensions



TO-263

Dimensions in inches and (millimeters)



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