

N-Channel Enhancement Mode Field Effect Transistor

General Description

Greenchip adopts advanced trench gate super junction technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. This super junction MOSFET fits the industry's AC-DC SMPS requirements for UPS, AC-DC power conversion, ATX power supplies, and industrial power applications.

Features

- Large current and voltage handling capability
- Strong surge current prevention
- New technology for high voltage device
- Low on-resistance and low conduction losses
- Small package
- Ultra Low Gate Charge cause lower driving requirements
- ROHS compliant

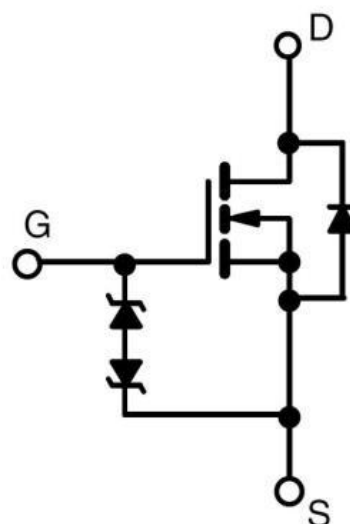
Typical information

$V_{(BR)DSS}$	$R_{DS(ON)typ}$	I_D
600V	26m Ω	80A

Applications

- LCD/LED/PDP TV
- Switched mode power supplies(SMPS)
- Uninterruptible Power Supply (UPS)
- ATX power supplies
- Industrial power applicatio

FRD MOSFET



Schematic diagram

ABSOLUTE MAXIMUN RATINGS

PARAMETERS/TEST CONDITIONS	SYMBOL	LIMITS	UNITS
Drain-Source Voltage	V_{DS}	600	V
Drain Current –continuous @25°C	I_D	80	A
Drain Current –continuous @100°C	I_D	48	A
Pulsed Drain Current ¹	I_{DM}	320	A
Gate-Source Voltage	V_{GS}	±30	V
Single Pulse Avalanche ²	E_{AS}	3.5	J
Operating Junction & Storage Temperature	T_j, T_{stg}	-55 to 150	°C
Lead Temperature (1/16" from case for 10sec.)	T_L	300	°C

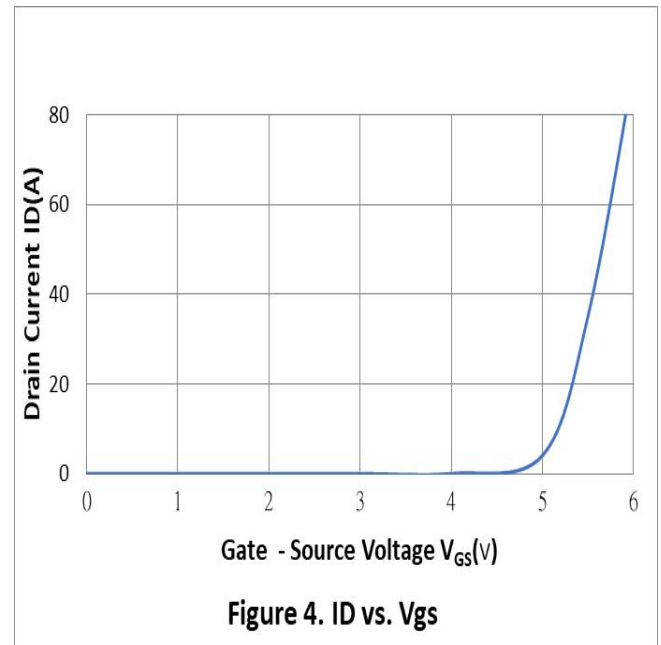
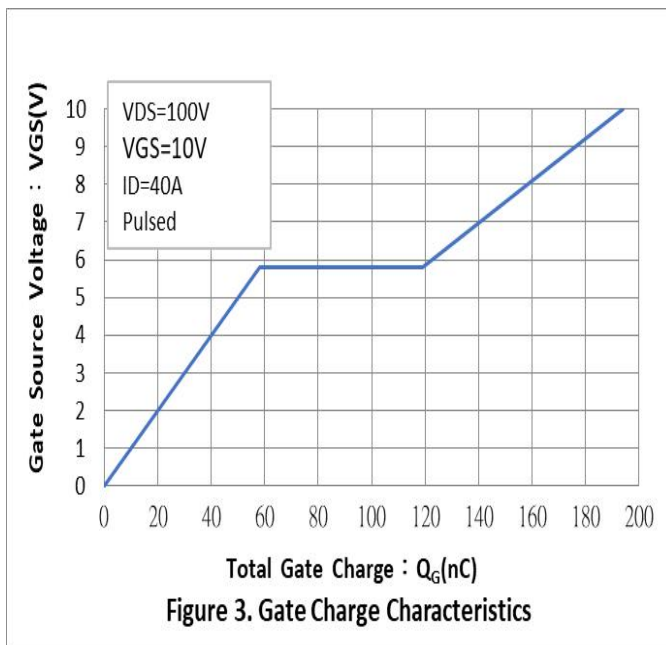
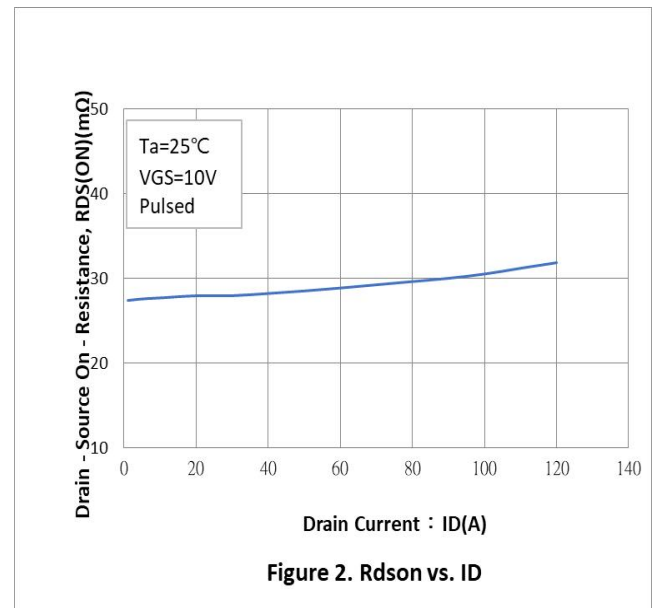
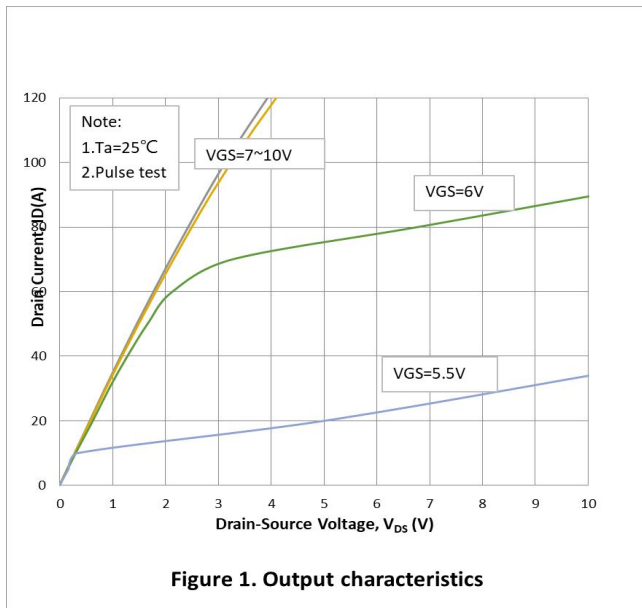
Note:

1. Pulse width limited by maximum junction temperature.
2. $V_{DD} = 90V$, $V_{DS} = 600V$, $L=30mH$

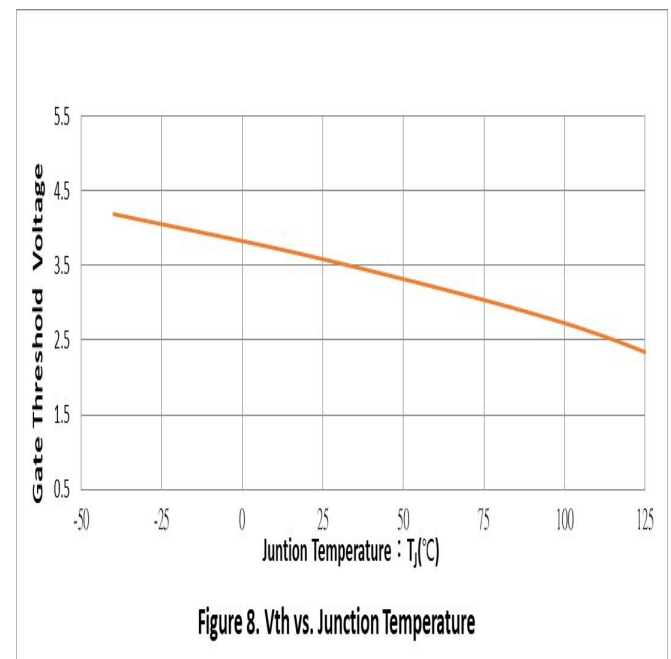
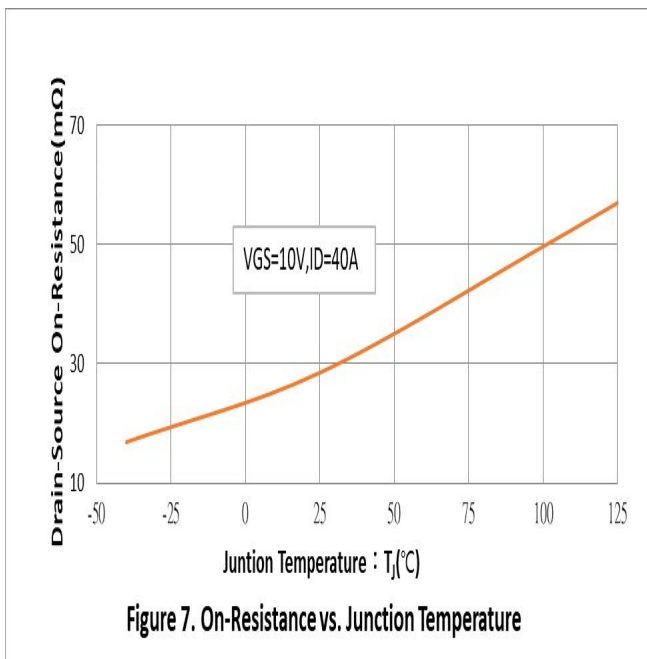
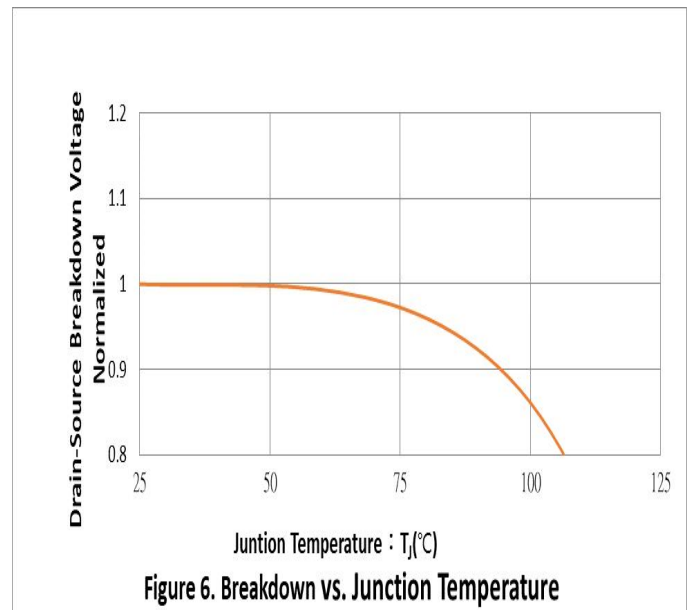
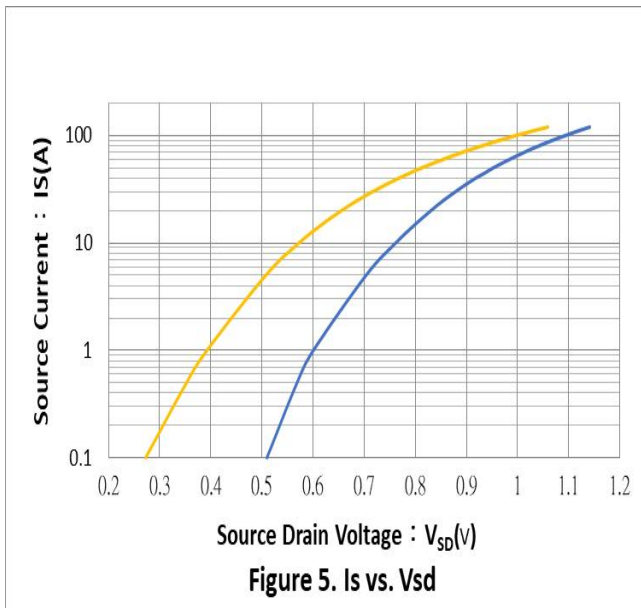
ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
		STATIC				
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	600			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	3	3.5	4	
Gate-Body Leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±30V			±10	μA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 600V, V _{GS} = 0V			10	μA
		V _{DS} = 600V, V _{GS} = 0V, T _J =150oC			100	
On-State Drain Current	R _{DS(ON)}	V _{GS} = 10V, I _D = 40A		26	30	mΩ
Body Diode Forward Voltage	V _{SD}	T _J = 25°C, V _{GS} = 0V, I _{SD} = 80A		1.0	1.4	V
DYNAMIC PARAMETERS						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = 50V, f = 100 KHz		9140		pF
Output Capacitance	C _{oss}			884		
Reverse Transfer Capacitance	C _{rss}			2.4		
Total Gate Charge	Q _g	V _{DD} = 400V, I _D = 40A, V _{GS} = 10V		195		nC
Gate-Source Charge	Q _{gs}			58		
Gate-Drain Charge	Q _{gd}			61		
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	t _(on)	VGS = 10V, VDS = 400V, ID = 40A, RG = 2Ω,		41.3		ns
Rise Time	t _r			24.6		
Turn-Off Delay Time	t _(off)			138.3		
Fall Time	t _f			19.8		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T _c = 25 °C)						
Continuous Current	I _S				80	A
Forward Voltage	V _{SD}	I _F =I _S , V _{GS} = 0V			1.5	V
Body Diode Reverse Recovery Time	T _{rr}	I _F =40A, di/dt =100A/us		396		nS
Body Diode Reverse Recovery Charge	Q _{rr}			3.2		uC

ELECTRICAL CHARACTERISTICS DIAGRAMS



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