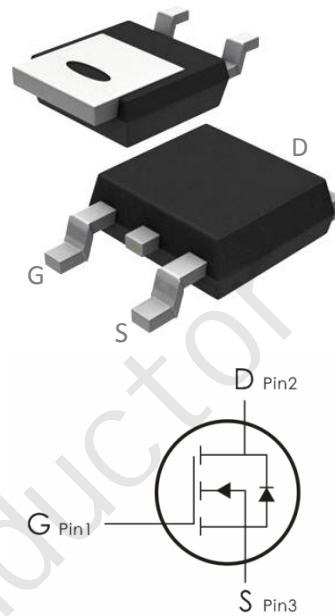


Description:

This N-Channel MOSFET uses advanced trench 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) $V_{DS}=30V, I_D=30A, R_{DS(ON)}<22m\Omega @V_{GS}=10V$
- 2) Low gate charge.
- 3) Green device available.
- 4) Advanced high cell density trench technology for ultra $R_{DS(ON)}$.
- 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	30	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Continuous Drain Current- $T_C=25^\circ C$ ¹	30	A
	Continuous Drain Current- $T_C=100^\circ C$	16	
	Pulsed Drain Current ²	92	
E_{AS}	Single Pulse Avalanche Energy ³	20	mJ
P_D	Power Dissipation, $T_C=25^\circ C$	25	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +175	$^\circ C$

Thermal Characteristics:

Symbol	Parameter	Max	Units
R_{eJC}	Thermal Resistance,Junction to Case ¹	4	$^\circ C/W$
R_{eJA}	Thermal Resistance,Junction to Ambient ¹	---	

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	$V_{\text{GS}}=0\text{V}, I_{\text{D}}=250 \mu\text{A}$	30	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{\text{GS}}=0\text{V}, V_{\text{DS}}=30\text{V}$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{\text{GS}}=\pm 20\text{V}, V_{\text{DS}}=0\text{A}$	---	---	± 100	nA
On Characteristics						
$V_{\text{GS}(\text{th})}$	GATE-Source Threshold Voltage	$V_{\text{GS}}=V_{\text{DS}}, I_{\text{D}}=250 \mu\text{A}$	1	1.5	2.5	V
$R_{\text{DS}(\text{ON})}$	Drain-Source On Resistance	$V_{\text{GS}}=10\text{V}, I_{\text{D}}=20\text{A}$	---	18	22	$\text{m}\Omega$
		$V_{\text{GS}}=4.5\text{V}, I_{\text{D}}=15\text{A}$	---	28	40	
G_{FS}	Forward Transconductance	$V_{\text{DS}}=5\text{V}, I_{\text{D}}=6\text{A}$	---	10	---	S
Dynamic Characteristics						
C_{iss}	Input Capacitance	$V_{\text{DS}}=15\text{V}, V_{\text{GS}}=0\text{V}, f=1\text{MHz}$	---	540	---	pF
C_{oss}	Output Capacitance		---	59	---	
C_{rss}	Reverse Transfer Capacitance		---	51	---	
Switching Characteristics						
$t_{\text{d(on)}}$	Turn-On Delay Time	$V_{\text{DD}}=15\text{V}, V_{\text{GS}}=10\text{V}, R_{\text{GEN}}=3\Omega$	---	3	---	ns
t_r	Rise Time		---	10	---	ns
$t_{\text{d(off)}}$	Turn-Off Delay Time		---	12	---	ns
t_f	Fall Time		---	3	---	ns
Q_g	Total Gate Charge	$V_{\text{GS}}=10\text{V}, V_{\text{DS}}=15\text{V}, I_{\text{D}}=3.6\text{A}$	---	12	---	nC
Q_{gs}	Gate-Source Charge		---	2	---	nC
Q_{gd}	Gate-Drain "Miller" Charge		---	4	---	nC
Drain-Source Diode Characteristics						
V_{SD}	Source-Drain Diode Forward Voltage	$V_{\text{GS}}=0\text{V}, I_{\text{S}}=20\text{A}$	---	---	1.2	V

LsD	Source-Drain Current(Body Diode)		---	23	A
trr	Reverse Recovery Time	I _F =20A, dI/dt=100A/μs	4	---	Ns
qrr	Reverse Recovery Charge		2	---	nc

Notes 1.The maximum current rating is package limited.

Notes 2.Repetitive Rating: Pulse width limited by maximum junction temperature

Notes 3.EAS condition: T_J=25°C, VDD=30V, V_G=10V, RG=25Ω

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

Figure 1. Output Characteristics

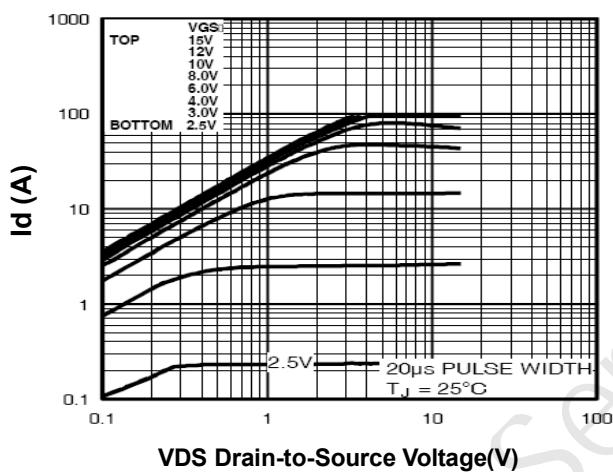


Figure 2. Transfer Characteristics

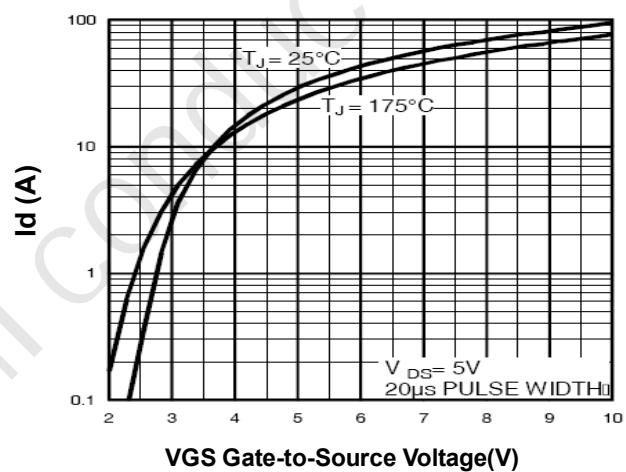


Figure 3. Max BV_{DSS} vs Junction Temperature

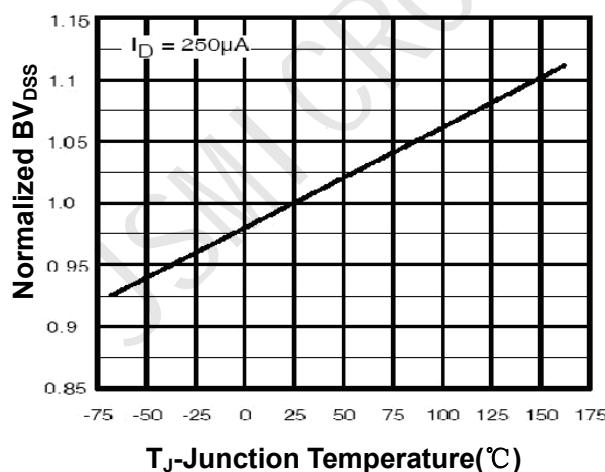


Figure 4. Drain Current

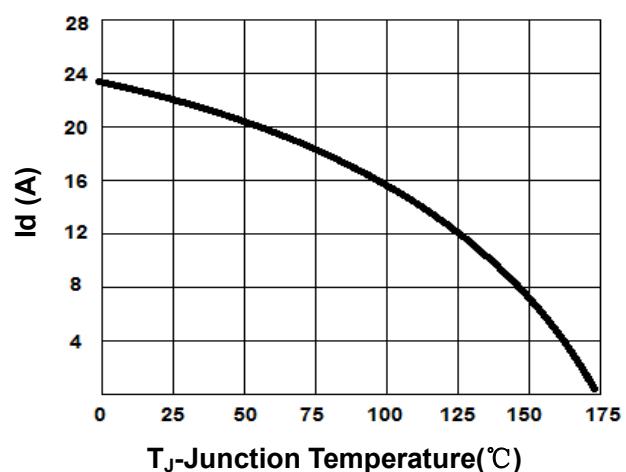


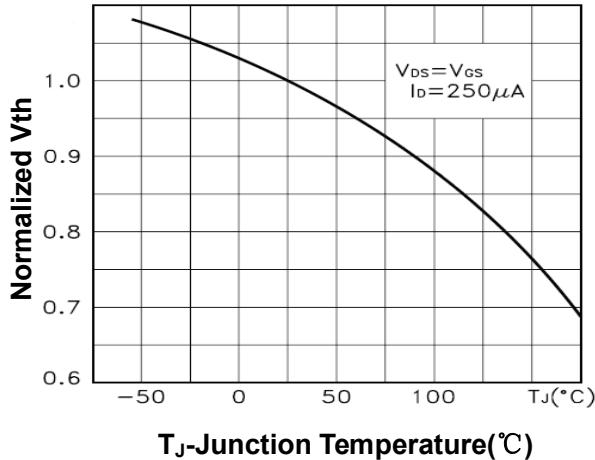
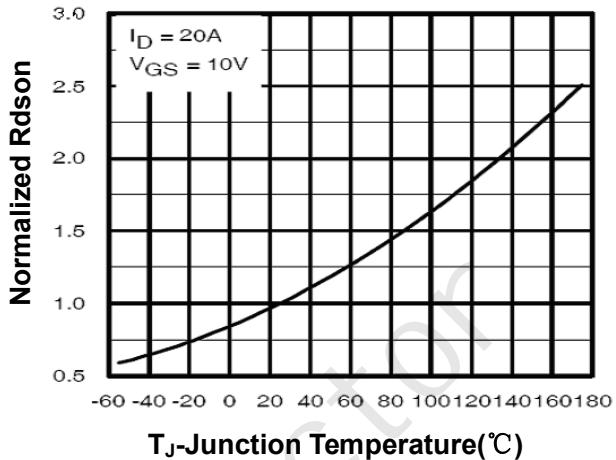
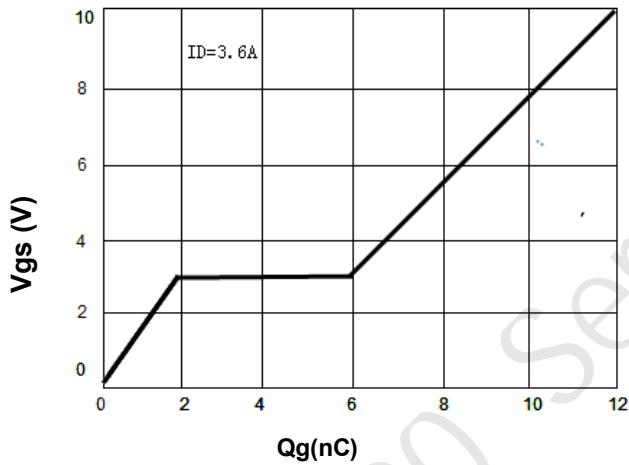
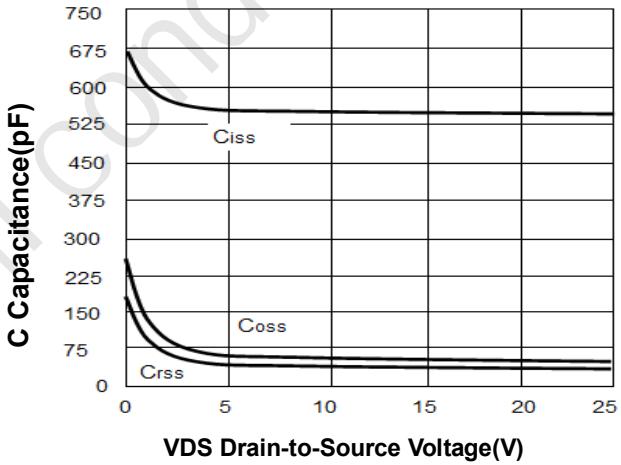
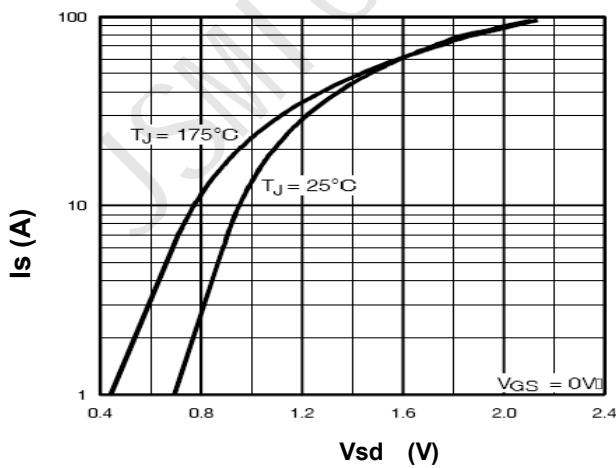
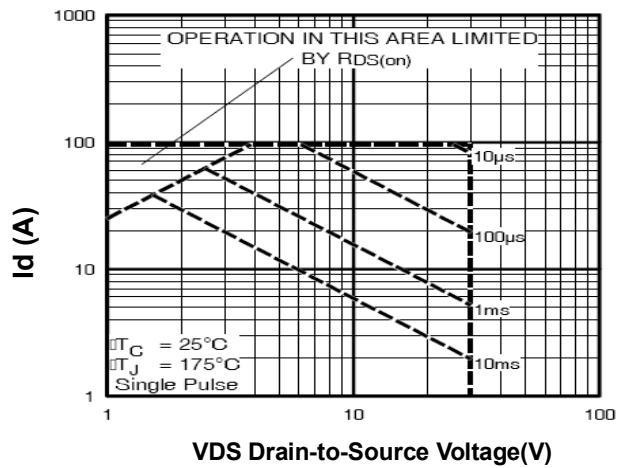
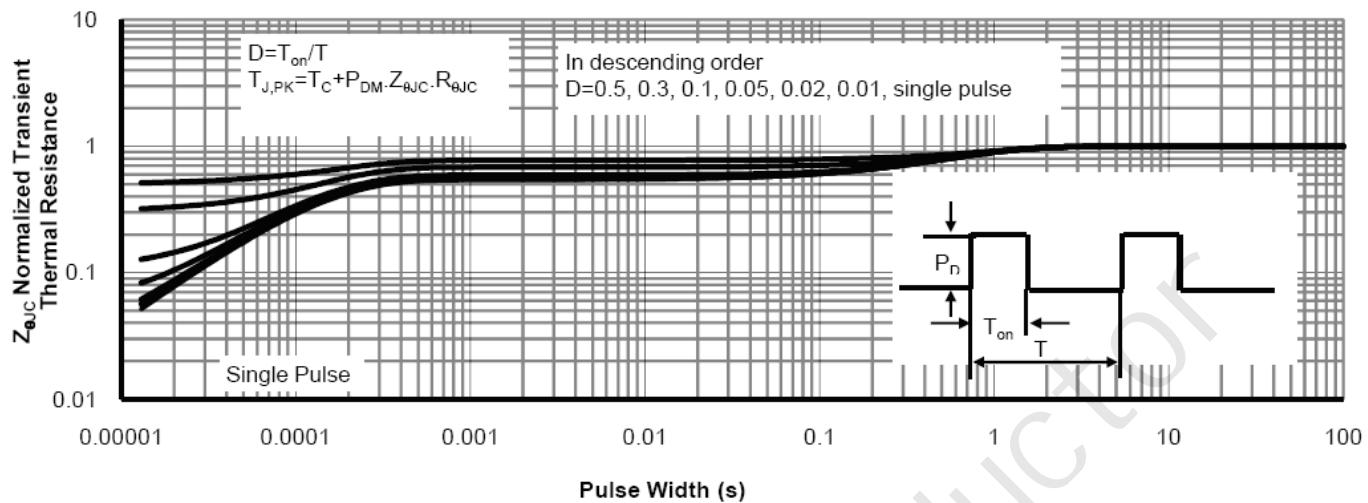
Figure 5. $V_{GS(th)}$ vs Junction Temperature

Figure 6. $R_{DS(on)}$ vs Junction Temperature

Figure 7. Gate Charge Waveforms

Figure 8. Capacitance

Figure 9. Body-Diode Characteristics

Figure 10. Maximum Safe Operating Area


Figure 11. Normalized Maximum Transient Thermal Impedance


外形尺寸图 / Package Dimensions

