

Features

- Advanced high cell density Trench technology
- Super Low Gate Charge
- Excellent CdV/dt effect decline
- 100% EAS Guaranteed
- Green Device Available

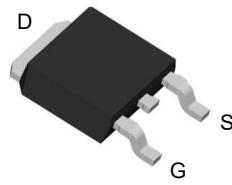
Product Summary



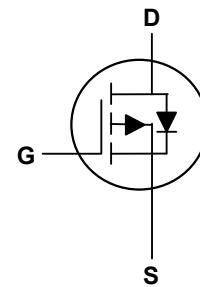
V_{DS}	-30	V
I_D	-120	A
$R_{DS(ON)}$ (at $V_{GS}=-10V$)	4	mΩ
$R_{DS(ON)}$ (at $V_{GS}=-4.5V$)	7	mΩ

Applications

- High Frequency Point-of-Load,Synchronous Buck Converter
- Networking DC-DC Power System
- Load Switch



TO-252 Top View



Absolute Maximum Ratings($T_c=25^\circ C$, unless otherwise noted)

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ¹	I_D	-120	A
Pulsed Drain Current ²	I_{DM}	-360	A
Single Pulse Avalanche Energy ³	E_{AS}	560	mJ
Total Power Dissipation ⁴	P_D	130	W
Storage Temperature Range	T_{STG}	-55 to 150	°C
Operating Junction Temperature Range	T_J	-55 to 150	°C

Thermal Characteristics

Parameter	Symbol	Typ	Max	Unit
Thermal Resistance Junction-Ambient ¹	$R_{\theta JA}$	---	62	°C/W
Thermal Resistance Junction-Case ¹	$R_{\theta JC}$	---	0.65	°C/W

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

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{\text{GS}}=0\text{V}$, $I_D=-250\mu\text{A}$	-30	---	---	V
Static Drain-Source On-Resistance	$R_{\text{DS}(\text{ON})}$	$V_{\text{GS}}=-10\text{V}$, $I_D=-30\text{A}$	---	3.2	4	$\text{m}\Omega$
		$V_{\text{GS}}=-4.5\text{V}$, $I_D=-20\text{A}$	---	5.5	7	$\text{m}\Omega$
Gate Threshold Voltage	$V_{\text{GS}(\text{th})}$	$V_{\text{GS}}=V_{\text{DS}}$, $I_D = -250\mu\text{A}$	-1.0	---	-3.0	V
Drain-Source Leakage Current	I_{DSS}	$V_{\text{DS}}=-30\text{V}$, $V_{\text{GS}}=0\text{V}$	---	---	-1	μA
Gate-Source Leakage Current	I_{GSS}	$V_{\text{GS}}=\pm 20\text{V}$, $V_{\text{DS}}=0\text{V}$	---	---	± 100	nA
Forward Transconductance	g_{fs}	$V_{\text{DS}}=-10\text{V}$, $I_D=-80\text{A}$	---	40	---	S
Total Gate Charge	Q_g	$V_{\text{DS}}=-24\text{V}$, $V_{\text{GS}}=-4.5\text{V}$, $I_D=-50\text{A}$	---	135	---	nC
Gate-Source Charge	Q_{gs}		---	20	---	
Gate-Drain Charge	Q_{gd}		---	50	---	
Turn-On Delay Time	$T_{\text{d}(\text{on})}$	$V_{\text{DD}}=-15\text{V}$, $V_{\text{GS}}=-10\text{V}$, $R_G=6\Omega$, $I_D=-50\text{A}$	---	35	---	ns
Rise Time	T_r		---	50	---	
Turn-Off Delay Time	$T_{\text{d}(\text{off})}$		---	220	---	
Fall Time	T_f		---	180	---	
Input Capacitance	C_{iss}	$V_{\text{DS}}=-25\text{V}$, $V_{\text{GS}}=0\text{V}$, $f=1\text{MHz}$	---	5980	---	pF
Output Capacitance	C_{oss}		---	2150	---	
Reverse Transfer Capacitance	C_{rss}		---	480	---	

Drain-Source Diode Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Continuous Source Current ¹	I_s		---	---	-120	A
Diode Forward Voltage ²	V_{SD}	$V_{\text{GS}}=0\text{V}$, $I_s=-20\text{A}$, $T_J=25^\circ\text{C}$	---	---	-1.2	V

Note:

- 1.The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
- 2.The data tested by pulsed , pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$
- 3.The EAS data shows Max. rating . The test condition is $V_{\text{DD}}=-25\text{V}$, $V_{\text{GS}}=-10\text{V}$
- 4.The power dissipation is limited by 150°C junction temperature

Typical Characteristics

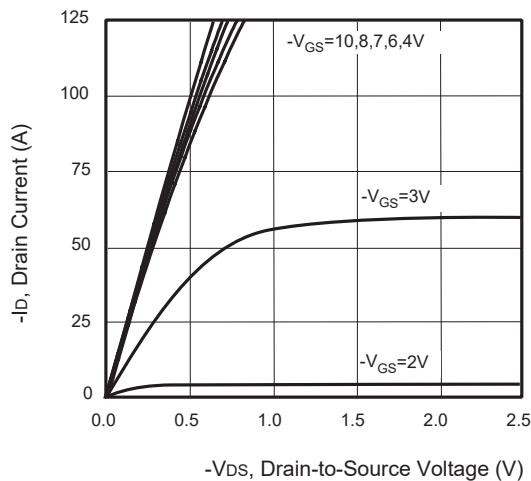


Figure 1. Output Characteristics

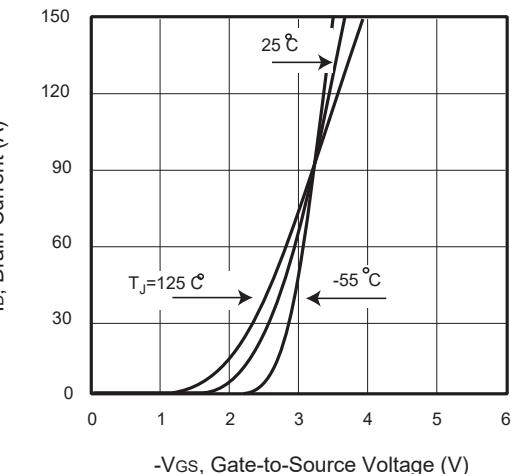


Figure 2. Transfer Characteristics

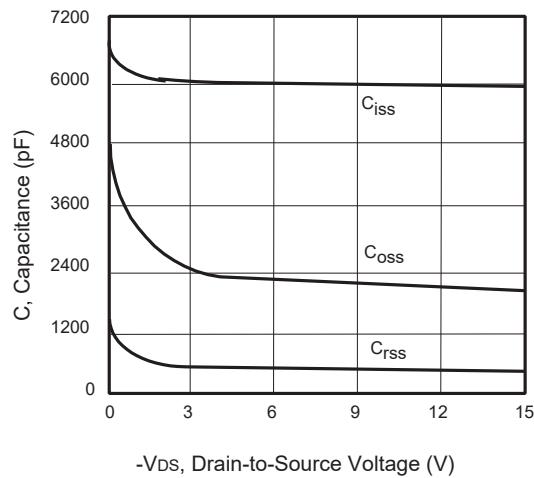


Figure 3. Capacitance

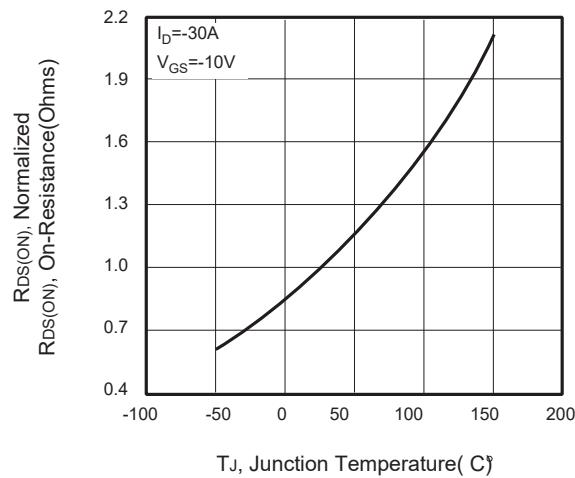


Figure 4. On-Resistance Variation with Temperature

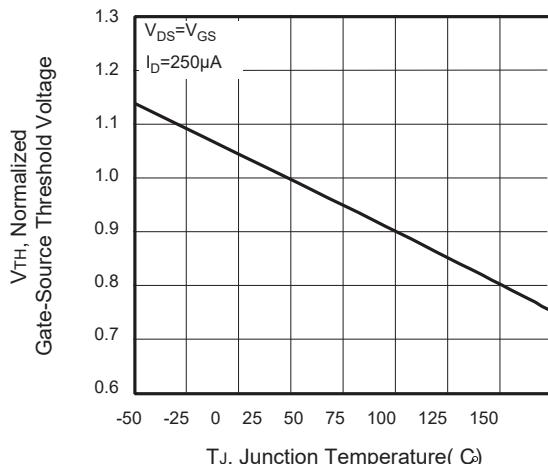


Figure 5. Gate Threshold Variation with Temperature

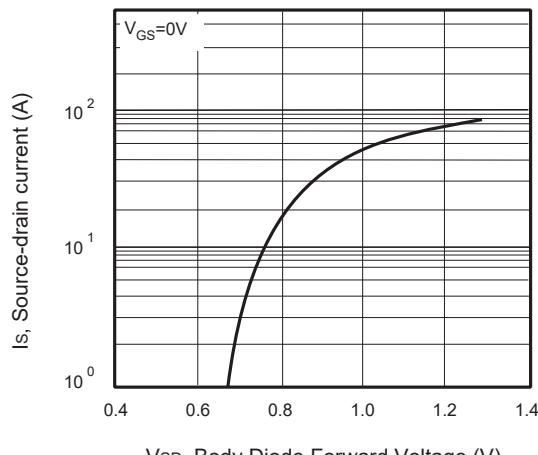


Figure 6. Body Diode Forward Voltage Variation with Source Current

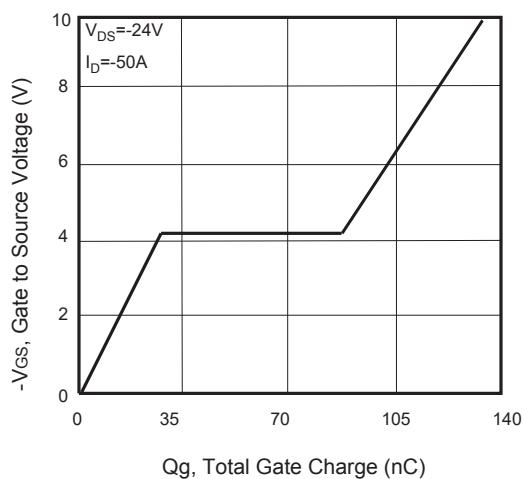


Figure 7. Gate Charge

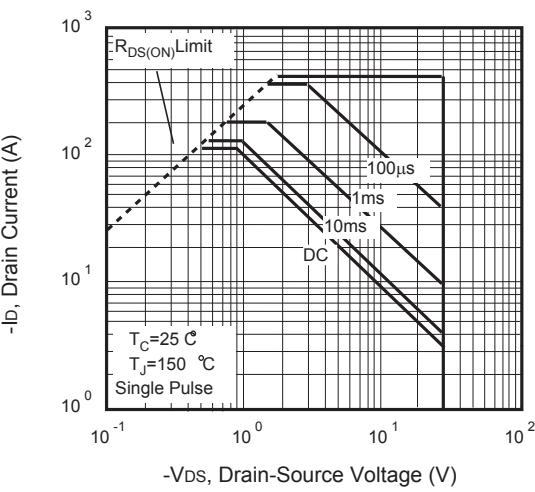
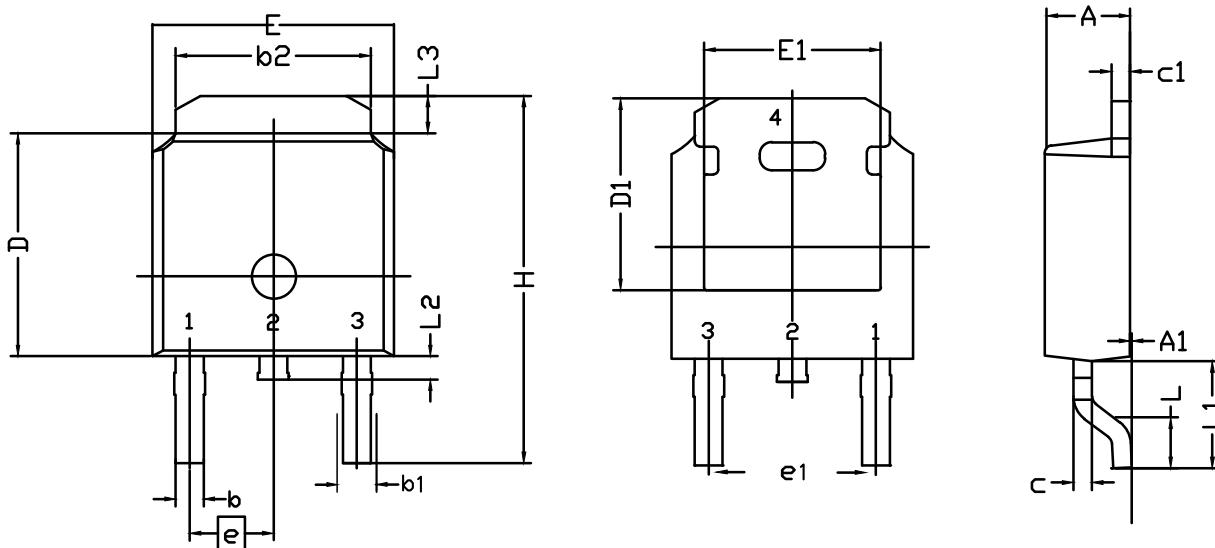


Figure 8. Maximum Safe Operating Area

TO-252 Package Outline Dimensions



Symbol	Dimensions (unit:mm)			Symbol	Dimensions (unit:mm)		
	Min	Typ	Max		Min	Typ	Max
A	2.20	2.30	2.38	E	6.40	6.60	6.731
A₁	0.00	0.10	0.20	E₁	4.40	--	--
b	0.64	0.76	0.89	e	2.286 BSC		
b₁	0.77	0.85	1.14	e₁	4.572 BSC		
b₂	5.00	5.33	5.46	H	9.40	10.00	10.40
c	0.458	0.508	0.610	L	1.40	1.52	1.77
C₁	0.458	0.508	0.620	L₁	--	2.743	--
D	5.98	6.10	6.223	L₂	0.60	0.80	1.01
D₁	5.20	5.25	5.38	L₃	0.90	1.06	1.25