

Features

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

Applications

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

Product Summary



V_{DS}	-60	V
I_D	-55	A
$R_{DS(ON)}$ (at $V_{GS}=-10V$)	15	m Ω
$R_{DS(ON)}$ (at $V_{GS}=-4.5V$)	18	m Ω



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

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	-60	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ¹	$I_D@T_C=25^{\circ}C$	-55	A
Continuous Drain Current ¹	$I_D@T_C=100^{\circ}C$	-25	A
Pulsed Drain Current ²	I_{DM}	-220	A
Single Pulse Avalanche Energy ³	E_{AS}	820	mJ
Total Power Dissipation ⁴	$P_D@T_C=25^{\circ}C$	75	W
Storage Temperature Range	T_{STG}	-55 to 150	$^{\circ}C$
Operating Junction Temperature Range	T_J	-55 to 150	$^{\circ}C$

Thermal Characteristics

Parameter	Symbol	Typ	Max	Unit
Thermal Resistance Junction-Ambient ¹	$R_{\theta JA}$	---	38	$^{\circ}C/W$
Thermal Resistance Junction-Case ¹	$R_{\theta JC}$	---	2.1	$^{\circ}C/W$

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

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =-250uA	-60	---	---	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =-10V, I _D =-15A	---	11	15	mΩ
		V _{GS} =-4.5V, I _D =-10A	---	14	18	mΩ
Gate Threshold Voltage	V _{GS(th)}	V _{GS} =V _{DS} , I _D =-250uA	-1.2	---	-2.5	V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =-60V, V _{GS} =0V	---	---	-1	uA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	---	---	±100	nA
Forward Transconductance	g _{fs}	V _{DS} =-10V, I _D =-10A	---	25	---	S
Total Gate Charge	Q _g	V _{DS} =-25V, V _{GS} =-10V, I _D =-10A	---	80	---	nC
Gate-Source Charge	Q _{gs}		---	31	---	
Gate-Drain Charge	Q _{gd}		---	35	---	
Turn-On Delay Time	T _{d(on)}	V _{DS} =-25V, V _{GS} =-10V, R _G =3Ω, R _L =1.5Ω	---	18	---	ns
Rise Time	T _r		---	20	---	
Turn-Off Delay Time	T _{d(off)}		---	55	---	
Fall Time	T _f		---	35	---	
Input Capacitance	C _{iss}	V _{DS} =-25V, V _{GS} =0V, f=1MHz	---	5910	---	pF
Output Capacitance	C _{oss}		---	300	---	
Reverse Transfer Capacitance	C _{rss}		---	130	---	

Drain-Source Diode Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Continuous Source Current ¹	I _S		---	---	-55	A
Diode Forward Voltage ²	V _{SD}	V _{GS} =0V, I _S =-20A, T _J =25°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 ≤ 300us, duty cycle ≤ 2%
- 3.The EAS data shows Max. rating. The test condition is V_{DD}=-25V, V_{GS}=-10V
- 4.The power dissipation is limited by 150°C junction temperature

Typical Characteristics

Fig.1 Gate-Charge Characteristics

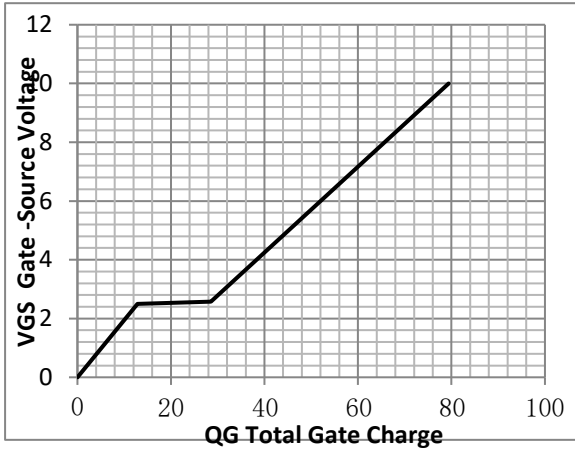


Fig.2 Capacitance Characteristics

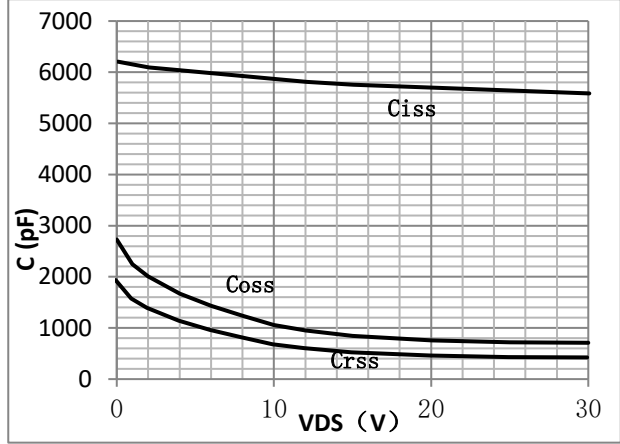


Fig.3 Power Dissipation

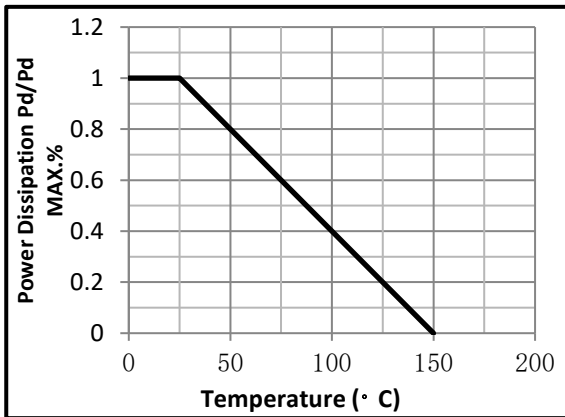


Fig.4 Typical output Characteristics

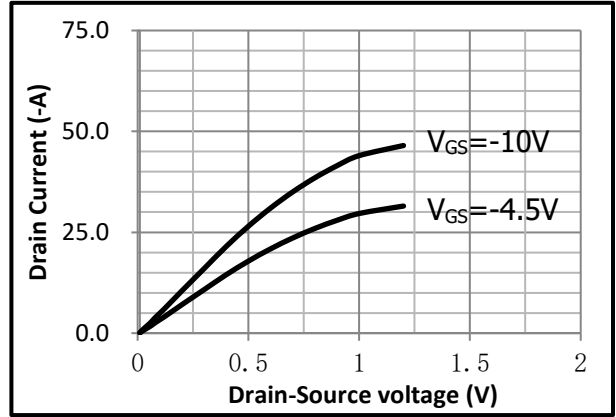


Fig.5 Threshold Voltage V.S Junction Temperature

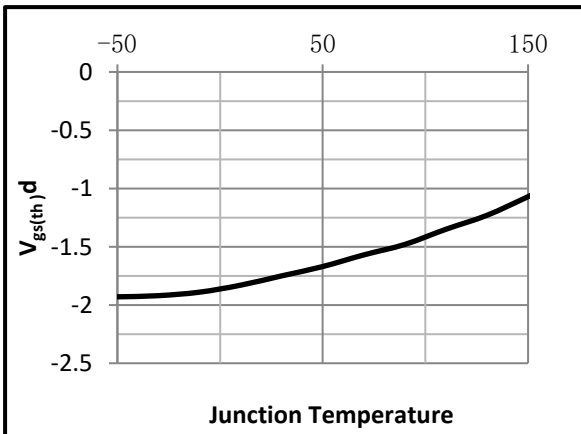


Fig.6 Resistance V.S Drain Current

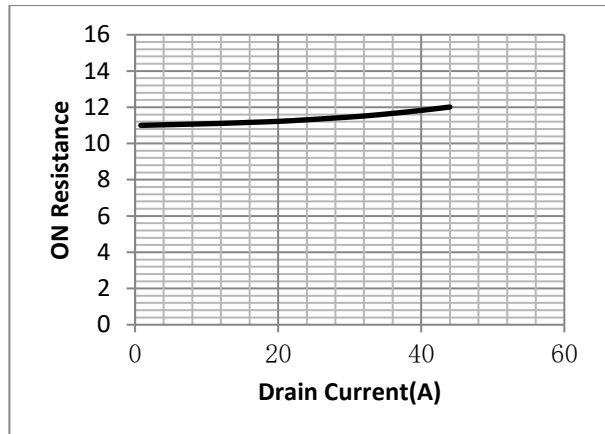


Fig.7 On-Resistance VS Gate Source Voltage

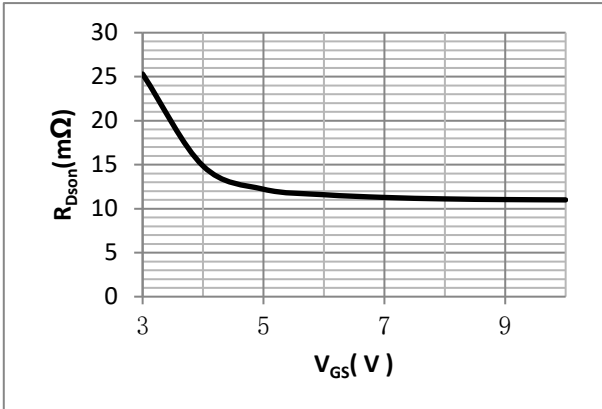
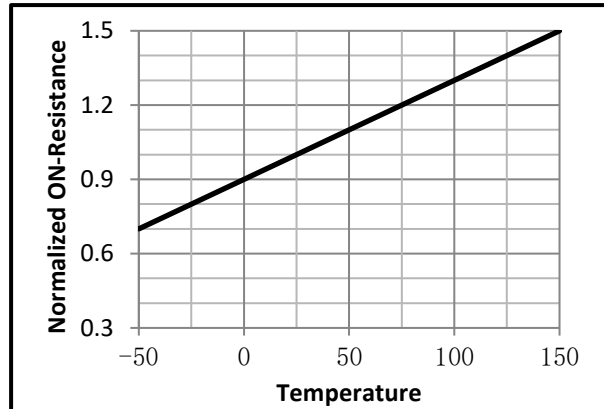
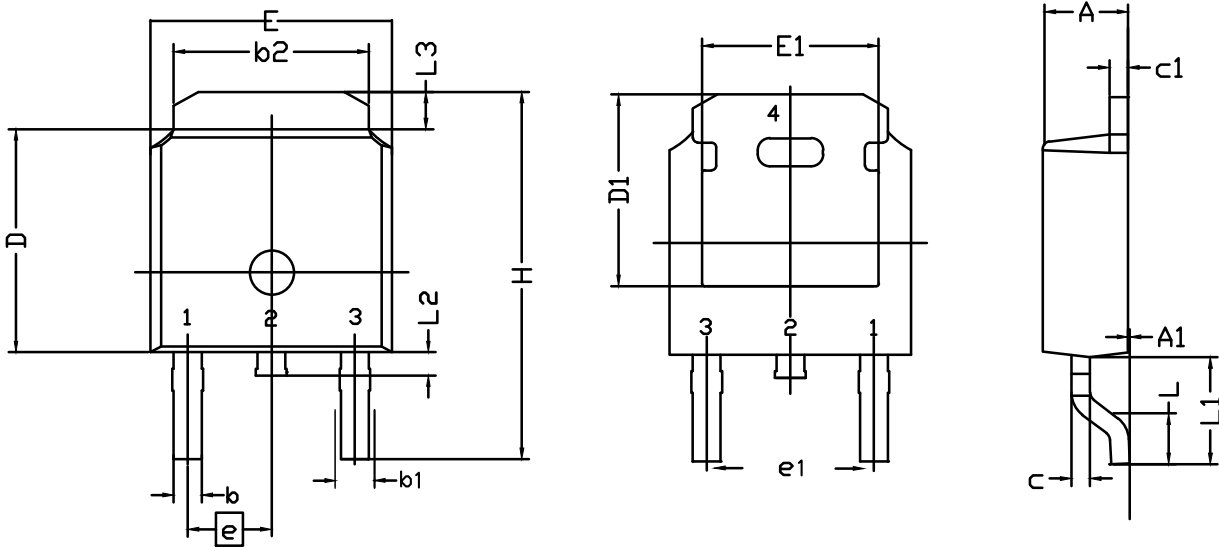


Fig.8 On-Resistance V.S Junction Temperature



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