

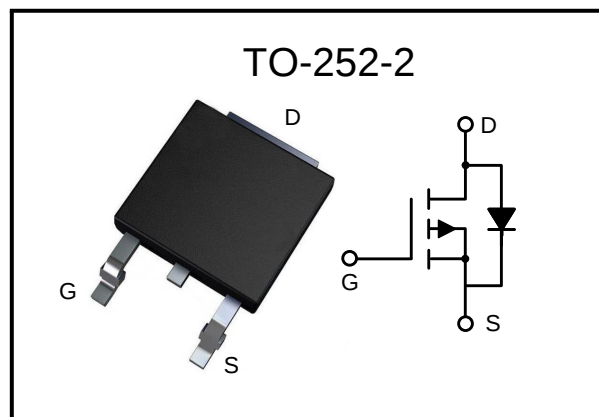
Features

- $V_{DS} = -60V$
- $I_D = -35A$
- $R_{DS(ON)} @ V_{GS} = -10V, TYP = 25m\Omega$
- $R_{DS(ON)} @ V_{GS} = -4.5V, TYP = 32m\Omega$

Description

- Split gate trench MOSFET technology
- Low $R_{DS(ON)}$ & FOM
- Extremely low switching loss
- Excellent stability and uniformity

Package



Application

- Power management
- Portable equipment

Absolute Maximum Ratings ($T_A = 25^\circ C$ unless otherwise specified)

Symbol	Parameter		Value	Units
V_{DS}	Drain-Source Voltage		-60	V
V_{GS}	Gate - Source Voltage		± 20	
I_D	Drain Current	$T_C = 25^\circ C$	-35	A
		$T_C = 100^\circ C$	-25	
I_{DM}	Drain Current-Pulse		-140	A
E_{AS}	Single Pulsed Avalanche Energy		225	mJ
P_D	Power Dissipation	$T_C = 25^\circ C$	92	W
		$T_C = 100^\circ C$	48	
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient ⁽³⁾		60	$^\circ C/W$
$R_{\theta JC}$	Thermal Resistance From Junction to Case		1.35	$^\circ C/W$
T_J	Junction Temperature		-55 to +150	$^\circ C$
T_{stg}	Storage Temperature Range		-55 to +150	$^\circ C$



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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Off Characteristics						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =-250uA	-60	—	—	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -48V, V _{GS} =0V	—	—	-1	uA
Gate-Body Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} =0V	—	—	±100	nA
On Characteristics						
Gate Threshold Voltage	V _{GS(TH)}	V _{GS} = V _{DS} , I _D =-250uA	-1.0	-2.0	-3.0	V
Static Drain-source On Resistance	R _{DS(ON)}	V _{GS} =-10V, I _D =-15A	—	25	33	mΩ
		V _{GS} =-4.5V, I _D =-10A	—	32	40	mΩ
Dynamic Characteristics						
Input capacitance	C _{iss}	V _{DS} =-30V, V _{GS} =0V, f = 1MHz	—	3050	—	pF
Output capacitance	C _{oss}		—	170	—	
Reverse transfer capacitance	C _{rss}		—	145	—	
Switching Characteristics						
Turn-on delay time	T _{d(on)}	V _{DD} =-30V, V _{GS} =-10V, R _G =3Ω, R _L =1.5Ω	—	13	—	ns
Turn-on Rise time	T _r		—	17	—	
Turn -Off Delay Time	T _{d(off)}		—	52	—	
Turn -Off Fall time	T _f		—	20	—	
Gate to Drain Charge	Q _g	V _{DS} =-30V, V _{GS} =-10V I _D =-10A	—	43	—	nC
Gate to Source Charge	Q _{gs}		—	5.3	—	
Gate to Drain Charge	Q _{gd}		—	8.8	—	
Drain-Source Diode Characteristics						
Diode Forward Voltage	V _{SD}	V _{GS} =0V,I _S =-15A	—	—	-1.2	V
Continuous Source Current	I _S	—	—	—	-35	A

Notes:

- (1) Repetitive rating; pulse width limited by max. junction temperature.
- (2) $V_{DD} = -30V, R_G = 25\Omega, L = 0.5mH$.
- (3) The value of $R_{\theta JA}$ is measured with the device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^{\circ}\text{C}$. The Power dissipation PDSM is based on $R_{\theta JA} \leq 10s$ and the maximum allowed junction temperature of 150°C . The value in any given application depends on the user's specific board design.



Typical Characteristics

Figure 1 : Output Characteristics

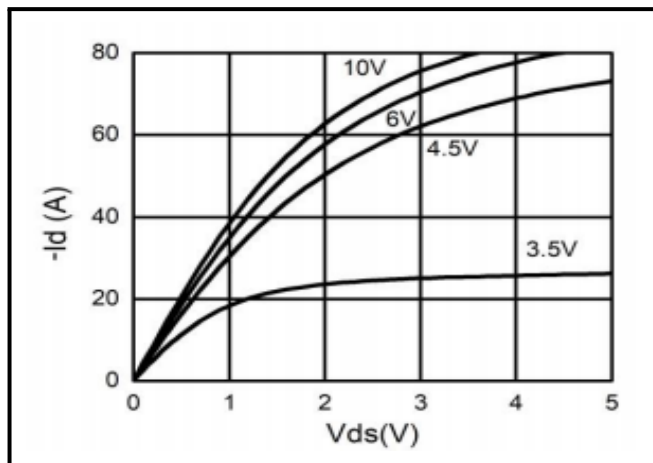


Figure 2 : Transfer Characteristics

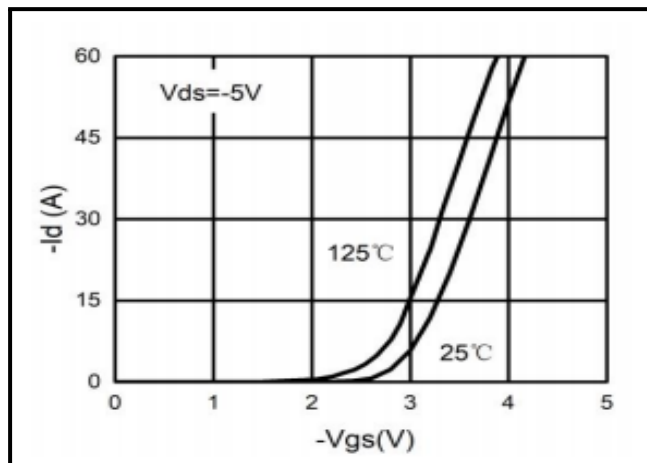


Figure 3 : Capacitance Characteristics

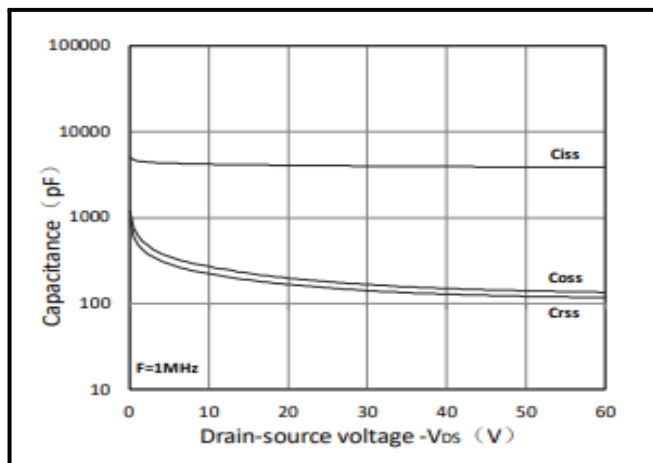


Figure 4 : Gate-Charge Characteristics

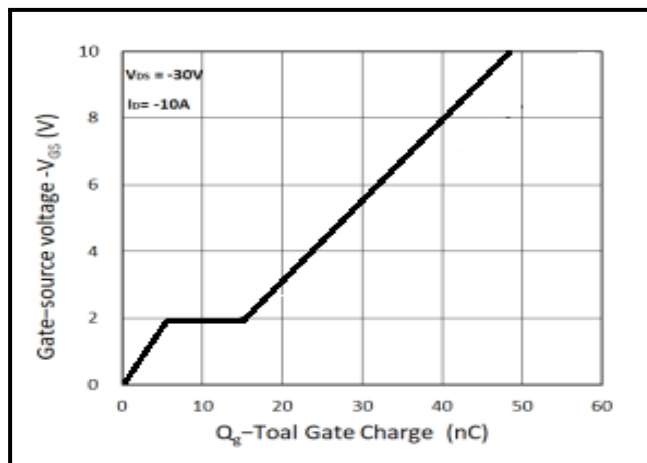


Figure 5 : BVdss vs TJ

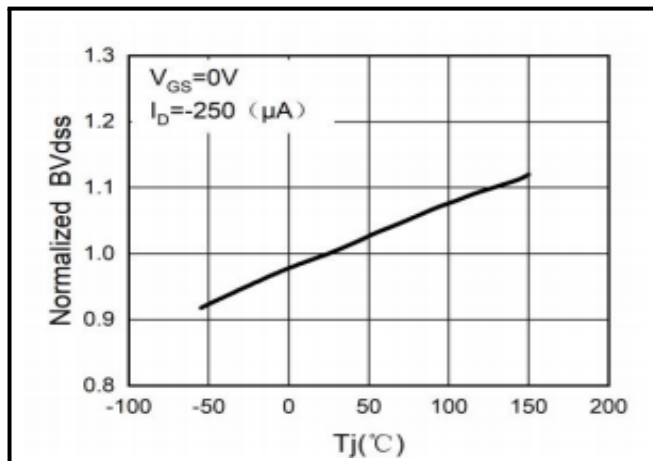
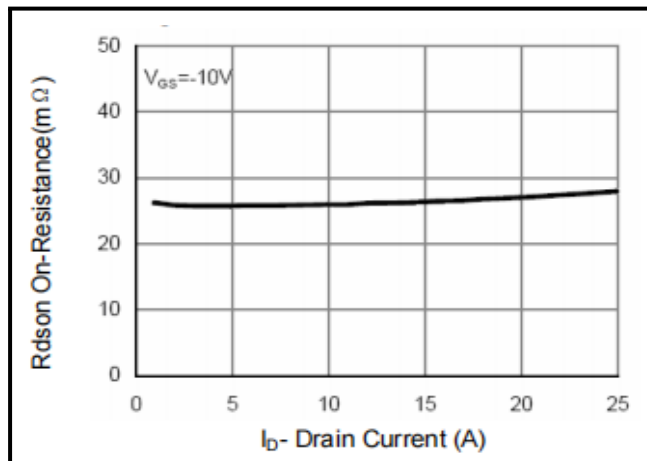


Figure 6 : RDS(ON) Drain Current



Typical Characteristics

Figure 7 : Power Derating

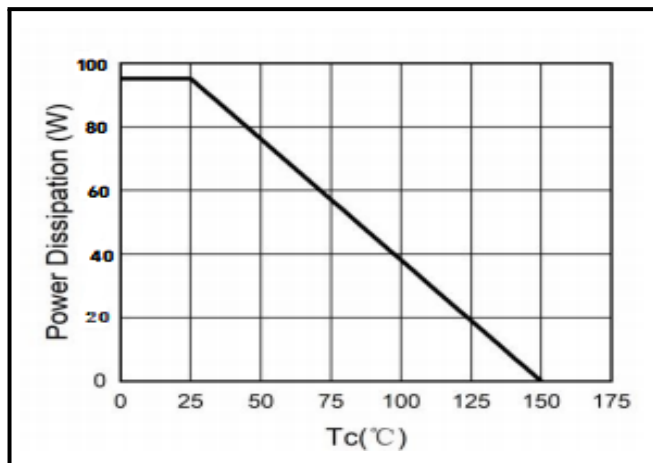


Figure 8 : Current Derating

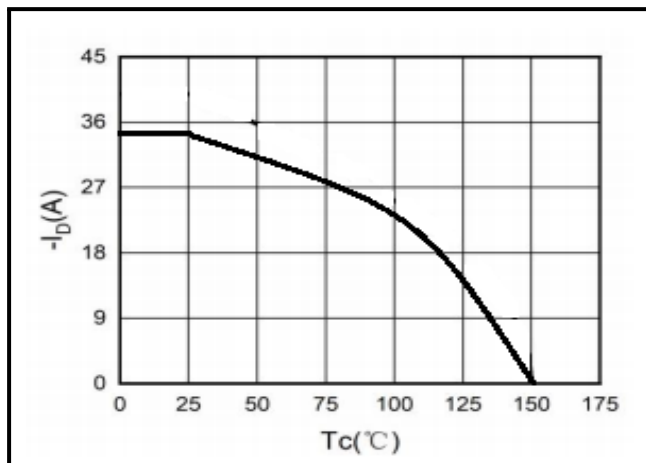


Figure 9 : BodyDiodeCharacteristics

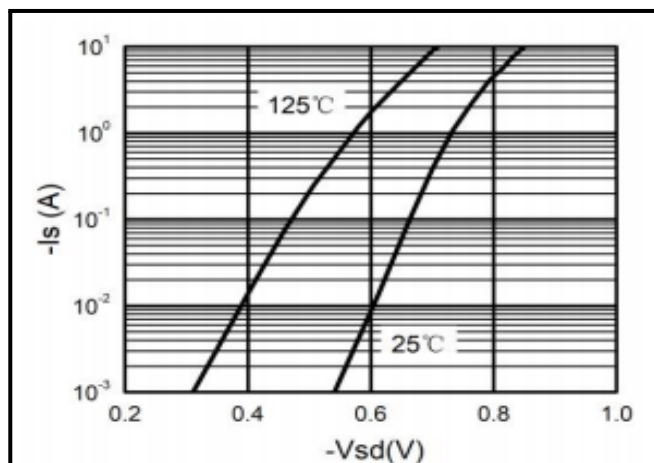
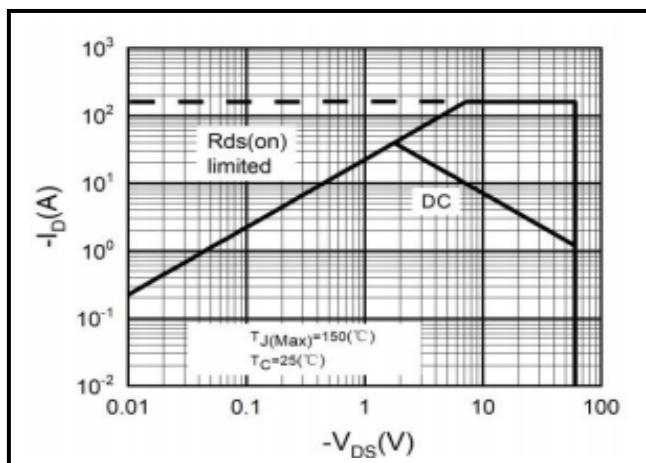
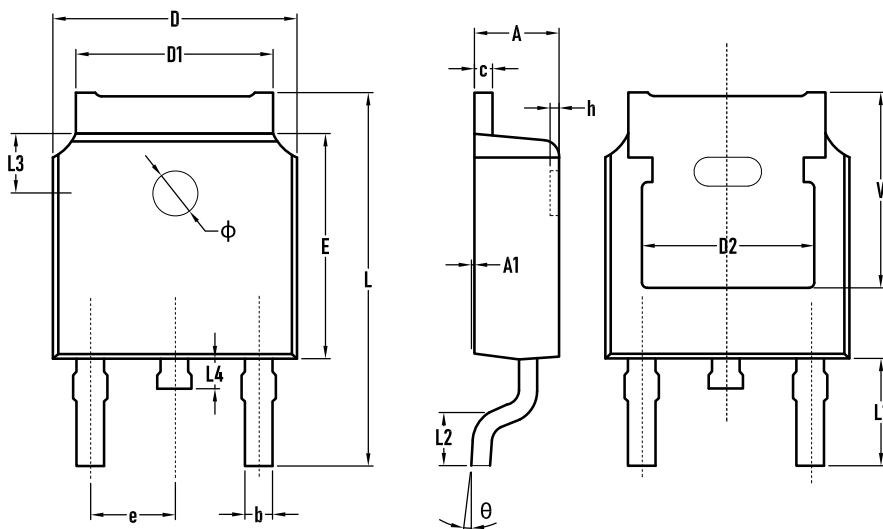


Figure 10 : Safe Operation Area



Packaging Tape - TO-252-2



SYMBOL	Millimeters		Inches	
	MIN.	MAX.	MIN.	MAX.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.660	0.860	0.026	0.034
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830 TYP.		0.190 TYP.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.800	10.400	0.386	0.409
L1	2.900 TYP.		0.114 TYP.	
L2	1.400	1.700	0.055	0.067
L3	1.600 TYP.		0.063 TYP.	
L4	0.600	1.000	0.024	0.039
φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.350 TYP.		0.211 TYP.	

