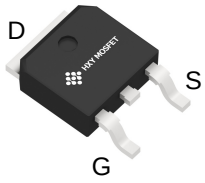
Description

The RFD3055LESM uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 4.5V. This device is suitable for use as a Battery protection or in other Switching application.



TO-252-2L (DPAK)

General Features

V_{DS} = 60V I_D = 8A

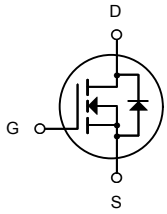
$R_{DS(ON)}$ < 100mΩ @ V_{GS}=10V

Application

Battery protection

Load switch

Uninterruptible power supply



N-Channel MOSFET

Ordering Information

Product ID	Pack	Brand	Qty(PCS)
RFD3055LESM	TO-252-2L(DPAK)	HXY MOSFET	2500

Absolute Maximum Ratings (T_C=25℃ unless otherwise noted)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_C=25℃	Continuous Drain Current, V_{GS} @ 10V	8	A
I_D@T_C=100℃	Continuous Drain Current, V_{GS} @ 10V	4	A
I_{DM}	Pulsed Drain Current	24	A
EAS	Single Pulse Avalanche Energy	6	mJ
P_D@T_C=25℃	Total Power Dissipation	16	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃

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

Symbol	Parameter	Conditions	Min	Typ	Max	Units
BV_{DSS}	Drain-Sourtce Breakdown Voltage	V_{GS}=0V,I_D=250μA	60	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{GS}=0V, V_{DS}=60V	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±20V, V_{DS}=0A	---	---	±100	nA
$V_{GS(th)}$	GATE-Source Threshold Voltage	V_{GS}=V_{DS}, I_D=250μA	1	1.5	2.2	V
$R_{DS(ON)}$	Drain-Source On Resistance[2]	V_{GS}=10V,I_D=3A	---	88	100	mΩ
		V_{GS}=4.5V,I_D=2A	---	95	125	mΩ
C_{iss}	Input Capacitance	V_{DS}=25V, V_{GS}=0V, f=1MHz	---	349	---	pF
C_{oss}	Output Capacitance		---	28	--	
C_{rss}	Reverse Transfer Capacitance		---	22	---	
$t_{d(on)}$	Turn-On Delay Time	V_{DS}=40V, I_D=40A, R_{ENG}=6Ω,V_{GS}=1	---	27	---	ns
t_r	Rise Time		---	17	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	43	---	ns
t_f	Fall Time		---	54	---	ns
Q_{gs}	Total Gate Charge	0V V_{GS}=10V, V_{DS}=30V, I_D=3A	---	1	---	nc
Q_{gd}	Gate-Source Charge		---	1.4	---	nc
Q_g	Gate-Drain “Miller” Charge		---	8	---	nc
V_{SD}	Diode Forward Voltage[1]	V_{GS}=0V, I_{SD}=5A	---	---	1.2	V
I_S	Continuous Drain Curren[3]	VD=VG=0V	---	---	8	A
I_{SM}	Pulsed Drain Current		---	---	24	A

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. EAS condition : T_J=25℃,V_{DD}=30V,V_G=10V,L=0.5mH,Rg=25Ω,I_{AS}=4A
3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

Typical Characteristics

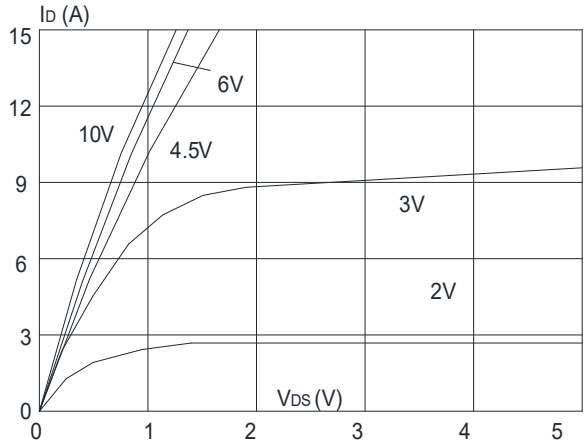


Figure1: Output Characteristics

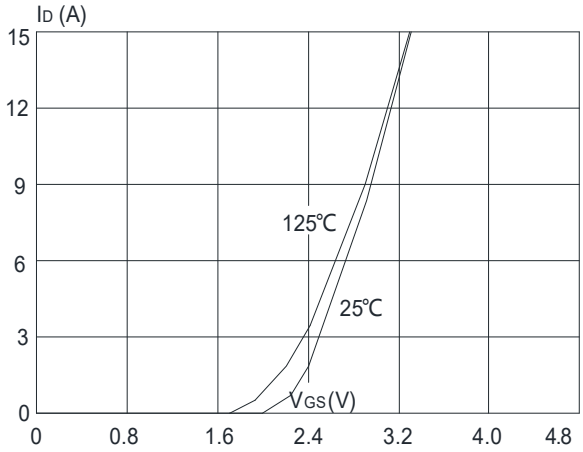


Figure 2: Typical Transfer Characteristics

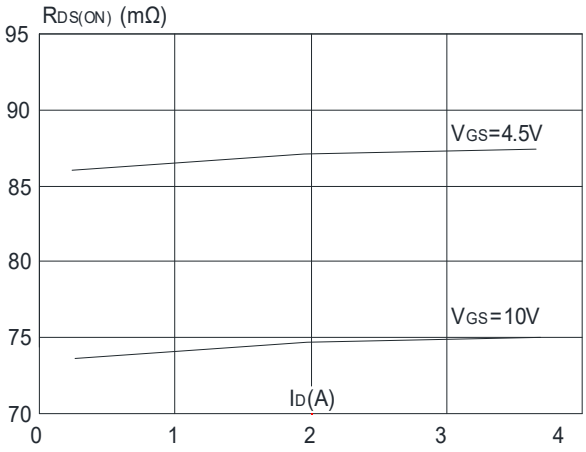


Figure 3: On-resistance vs. Drain Current

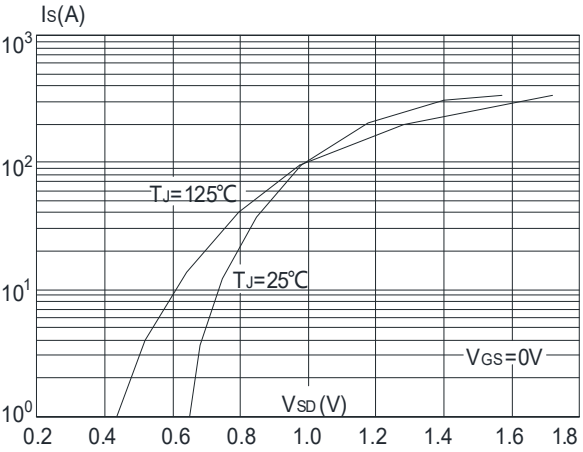


Figure 4: Body Diode Characteristics

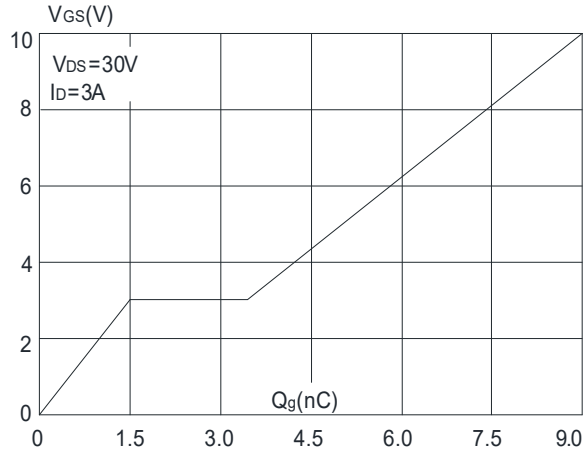


Figure 5: Gate Charge Characteristics

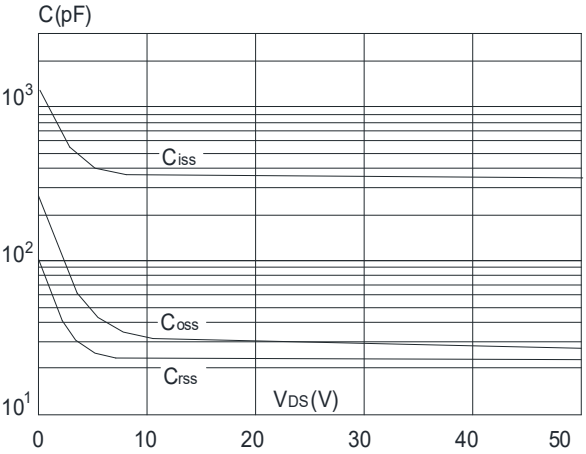


Figure 6: Capacitance Characteristics

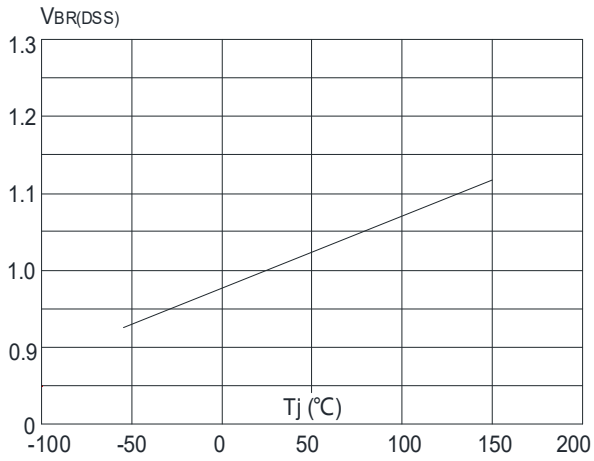


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

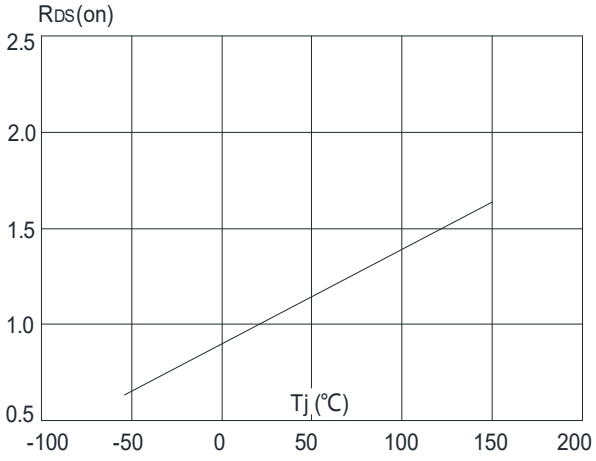


Figure 8: Normalized on Resistance vs. Junction Temperature

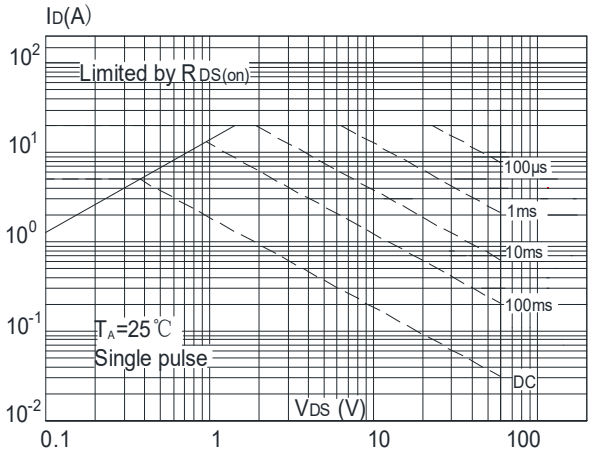


Figure 9: Maximum Safe Operating Area

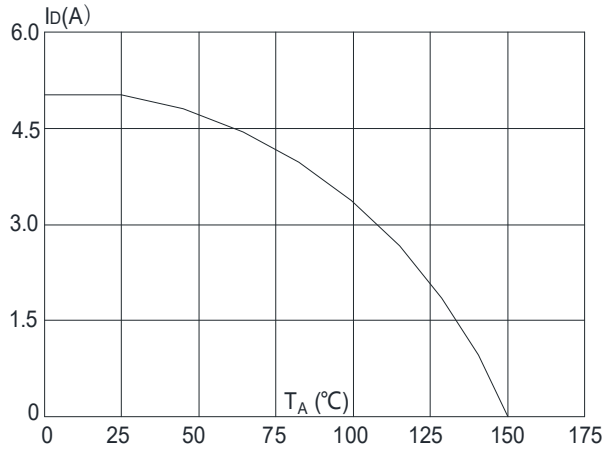


Figure 10: Maximum Continuous Drain Current vs.Ambient Temperature

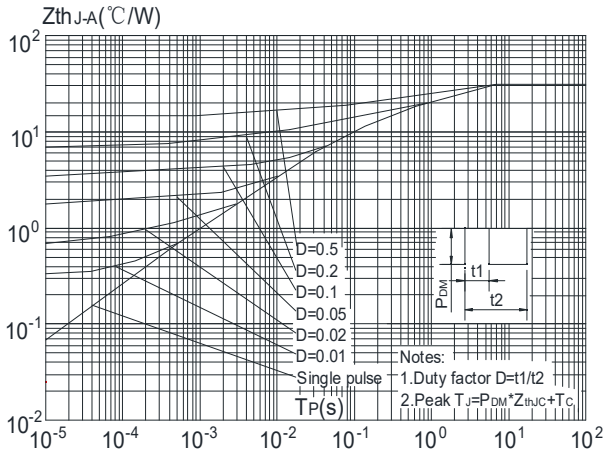
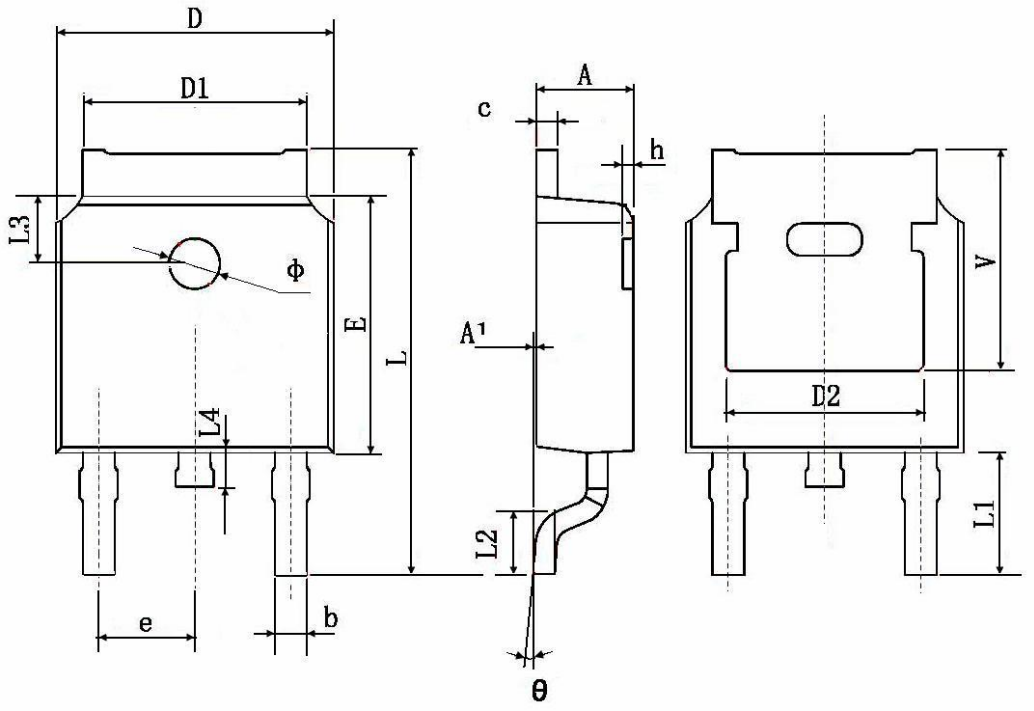


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

TO-252-2L(DPAK) Package Information



Symbol	Dimensions In Millimeters		Dimensions In 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	0.483 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.	

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