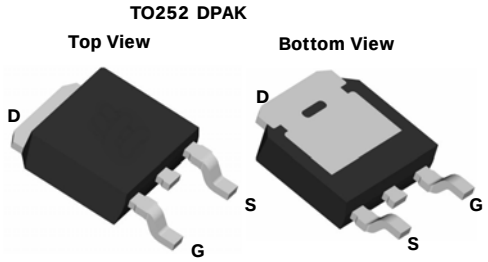
Features

- - 20V, -60A

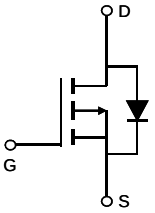
  $R_{DS(ON)}$ Typ = 5mΩ @ V_{GS} = -4.5V

  $R_{DS(ON)}$ Typ = 7mΩ @ V_{GS} = -2.5V
- Excellent $R_{DS(ON)}$ and Low Gate Charge



Application

- Load Switch
- PWM Application
- Power Management



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

Symbol	Parameter		Max.	Units
V_{DSS}	Drain-Source Voltage		-20	V
V_{GSS}	Gate-Source Voltage		±12	V
I_D	Continuous Drain Current	T_C = 25℃	-60	A
		T_C = 100℃	-39	
I_{DM}	Pulsed Drain Current note1		-240	A
P_D	Power Dissipation	T_C= 25℃	70	W
$R_{\theta JC}$	Thermal Resistance, Junction to Ambient		2.1	℃/ W
T_J, T_{STG}	Operating and Storage Temperature Range		-55 to +175	℃

Electrical Characteristics (T_J=25℃ unless otherwise specified)

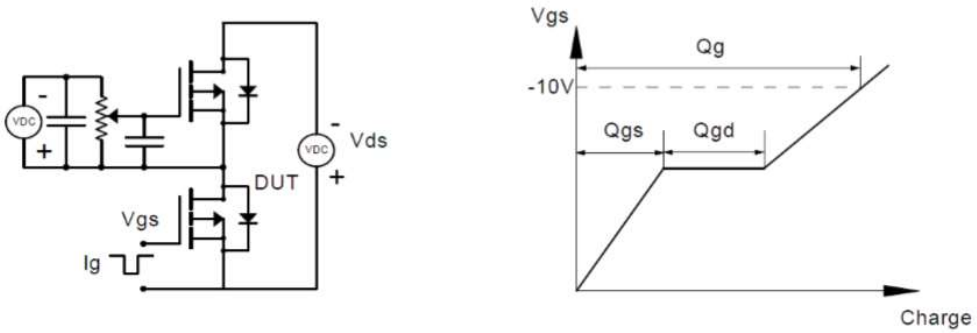
Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V,I_D= -250μA	-20	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = -20V, V_{GS} = 0V,	-	-	-1	μA
I_{GSS}	Gate to Body Leakage Current	V_{DS} =0V, V_{GS} = ±12V	-	-	±100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}= V_{GS}, I_D= -250μA	-0.4	-0.85	-1.2	V
$R_{DS(on)}$	Static Drain-Source on-Resistance note3	V_{GS} =-4.5V, I_D =-15A	-	5.0	8.5	mΩ
		V_{GS} =-2.5V, I_D =-12A	-	7	12	
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS} =-10V, V_{GS} =0V, f = 1.0MHz	-	4184	-	pF
C_{oss}	Output Capacitance		-	466	-	pF
C_{rss}	Reverse Transfer Capacitance		-	387	-	pF
Q_g	Total Gate Charge	V_{DS} =-10V, I_D =-15A, V_{GS} =-4.5V	-	46	-	nC
Q_{gs}	Gate-Source Charge		-	7.3	-	nC
Q_{gd}	Gate-Drain(“Miller”) Charge		-	10	-	nC
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	V_{DD} =-10V, I_D =-14A, R_{GEN}=2.7Ω, V_{GS} =-10V	-	8	-	ns
t_r	Turn-on Rise Time		-	59	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	111	-	ns
t_f	Turn-off Fall Time		-	43	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	-	-60	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	-240	A
V_{SD}	Drain to Source Diode Forward Voltage	V_{GS} = 0V, I_S =-20A	-	-	-1.2	V
trr	Reverse Recovery Time	T_J=25℃,I_{SD}=-15A, V_{GS}=0V di/dt=-100A/μs	-	18	-	ns
Qrr	Reverse Recovery Charge		-	7.7	-	nC

Notes:1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

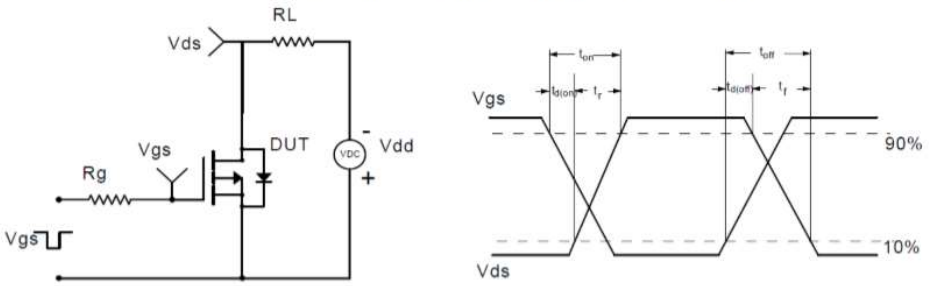
2. EAS condition: T_J=25℃,V_{DD}=-10V,V_G=-10V, R_G=5.9Ω, L=0.5mh,I_{AS}=-13.2A

3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

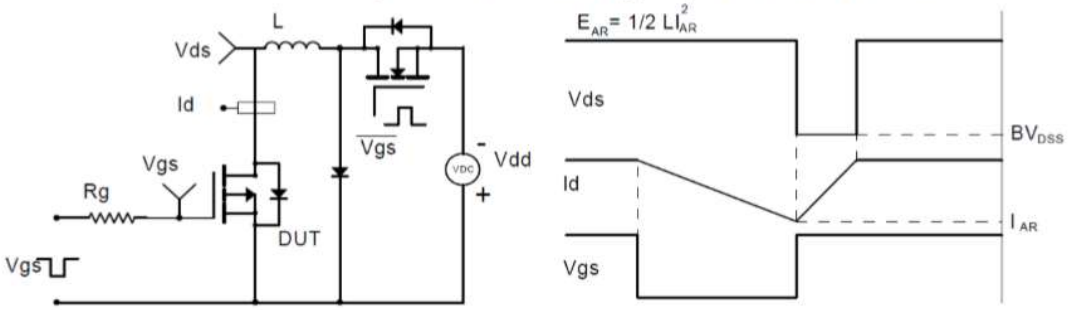
Gate Charge Test Circuit & Waveform



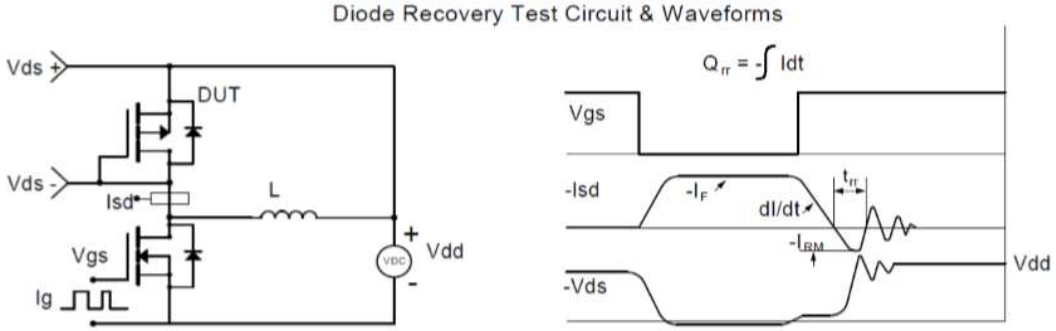
Resistive Switching Test Circuit & Waveforms



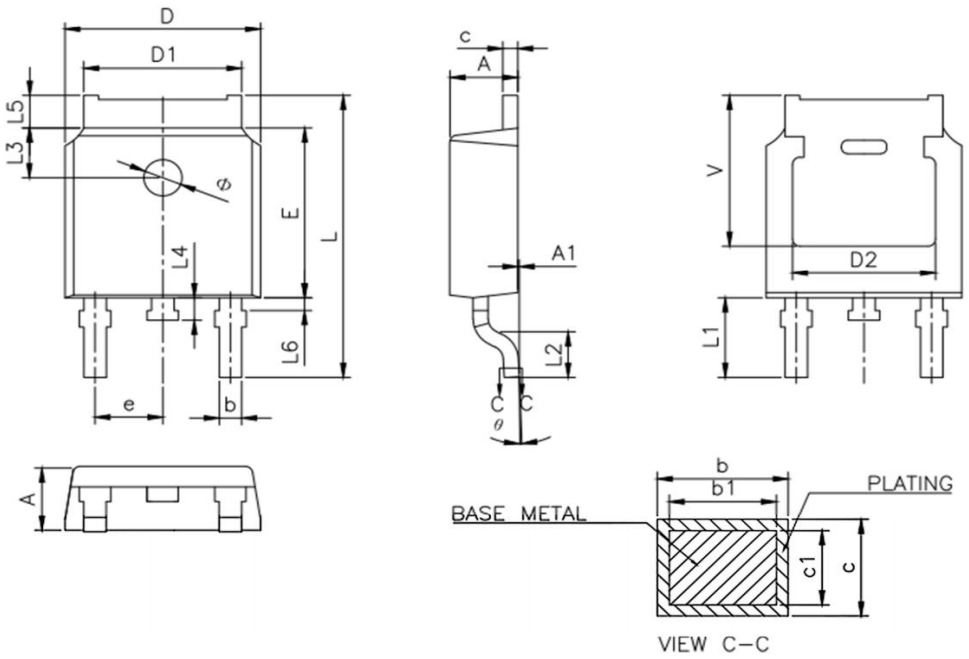
Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms



Package Mechanical Data(TO-252-3L)



SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	2.20	2.30	2.40
A1	0.00	--	0.127
b	0.66	--	0.86
b1	0.65	0.76	0.81
D	6.50	6.60	6.70
D1	5.10	5.33	5.46
c	0.47	--	0.60
c1	0.46	0.51	0.56
D2	4.83 REF.		
E	6.00	6.10	6.20
e	2.186	2.286	2.386
L	9.80	10.10	10.40
L1	2.90 REF.		
L2	1.40	1.50	1.60
L3	1.80 REF.		
L4	0.60	0.80	1.00
L5	0.90	--	1.25
L6	0.15	--	0.75
Φ	1.10	--	1.30
θ	0°	--	8°
V	5.40 REF		