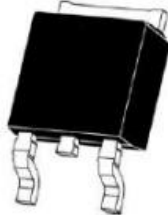

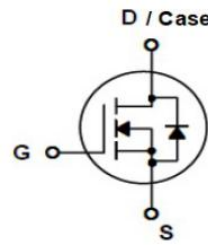




#### Description

<p><b>Product Summary</b></p> <ul style="list-style-type: none"> <li>• VDS 20V</li> <li>• ID 60A</li> <li>• RDS(ON)( at VGS=4.5V) &lt;6.5mohm</li> <li>• RDS(ON)( at VGS=2.5V) &lt;8.8mohm</li> <li>• RDS(ON)( at VGS=1.8V) &lt;14mohm</li> <li>• 100% UIS Tested</li> <li>• 100% ▽VDS Tested</li> </ul>	<p><b>General Description</b></p> <ul style="list-style-type: none"> <li>• Trench Power LV MOSFET technology</li> <li>• Excellent package for heat dissipation</li> <li>• High density cell design for low RDS(ON)</li> </ul> <p><b>Applications</b></p> <ul style="list-style-type: none"> <li>• High current load applications</li> <li>• Load switching</li> <li>• Hard switched and high frequency circuits</li> <li>• Uninterruptible power supply</li> </ul>
<p><b>Package</b></p>  <p>TO-252</p>  	

#### Absolute Maximum Ratings (T<sub>A</sub>=25°C unless otherwise noted)

Symbol	Parameter	Limit	Unit	
VDS	Drain-source Voltage	20	V	
VGS	Gate-source Voltage	±10	V	
ID	Drain Current	TC=25°C	60	A
		TC=100°C	40	
IDM	Pulsed Drain Current <sup>A</sup>	150	A	
PD	Total Power Dissipation	TC=25°C	35	W
		TC=100°C	18	W
EAS	Single Pulse Avalanche Energy <sup>B</sup>	155	mJ	
RθJC	Thermal Resistance Junction-to-Case <sup>C</sup>	4.3	°C/W	
T <sub>J</sub> , T <sub>STG</sub>	Junction and Storage Temperature Range	-55~+175	°C	



#### Electrical Characteristics (T<sub>J</sub>=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
<b>Static Parameter</b>						
BVDSS	Drain-Source Breakdown Voltage	VGS= 0V, ID=250μA	20			V
IDSS	Zero Gate Voltage Drain Current	VDS=20V, VGS=0V			1	μA
IGSS	Gate-Body Leakage Current	VGS= ±10V, VDS=0V			±100	nA
VGS(th)	Gate Threshold Voltage	VDS= VGS, ID=250μA	0.4	0.62	1.0	V
RDS(ON)	Static Drain-Source On-Resistance	VGS= 4.5V, ID=20A		4.9	6.5	mΩ
		VGS= 2.5V, ID=15A		6.0	8.8	
		VGS= 1.8V, ID=10A		8.0	14	
VSD	Diode Forward Voltage	IS=20A, VGS=0V			1.2	V
IS	Maximum Body-Diode Continuous Current				60	A
<b>Dynamic Parameters</b>						
Ciss	Input Capacitance	VDS=10V, VGS=0V, f=1MHZ		2450		pF
Coss	Output Capacitance			430		
Crss	Reverse Transfer Capacitance			205		
<b>Switching Parameters</b>						
Qg	Total Gate Charge	VGS=4.5V, VDS=10V, ID=15A		65		nC
Qgs	Gate-Source Charge			15		
Qgd	Gate-Drain Charge			13		
Qrr	Reverse Recovery Charge	IF=15A, di/dt=100A/us		39		ns
trr	Reverse Recovery Time			35		
tD(on)	Turn-on Delay Time	VGS=4.5V, VDD=10V, ID=10A, RL=1Ω, RGEN=3Ω		12		ns
tr	Turn-on Rise Time			26		
tD(off)	Turn-off Delay Time			35		
tf	Turn-off fall Time			10		

A. Pulse Test: Pulse Width ≤ 300us, Duty cycle ≤ 2%.

B. T<sub>J</sub>=25°C, V<sub>DD</sub>=20V, V<sub>G</sub>=10V, L=0.5mH, R<sub>g</sub>=25 Ω

C. R<sub>θJA</sub> is the sum of the junction-to-case and case-to-ambient thermal resistance, where the case thermal reference is defined as the solder mounting surface of the drain pins. R<sub>θJC</sub> is guaranteed by design, while R<sub>θJA</sub> is determined by the board design. The maximum rating presented here is based on mounting on a 1 in 2 pad of 2oz copper.



Typical Performance Characteristics

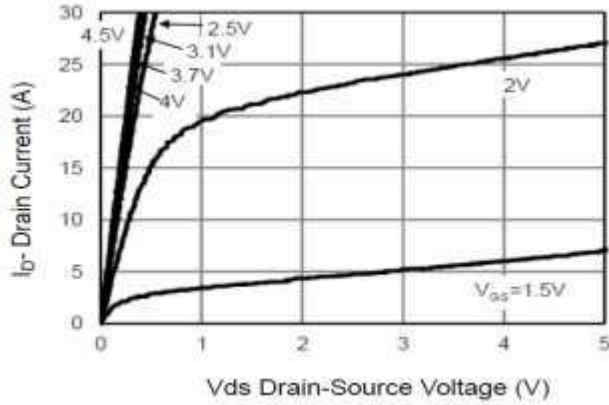


Figure1. Output Characteristics

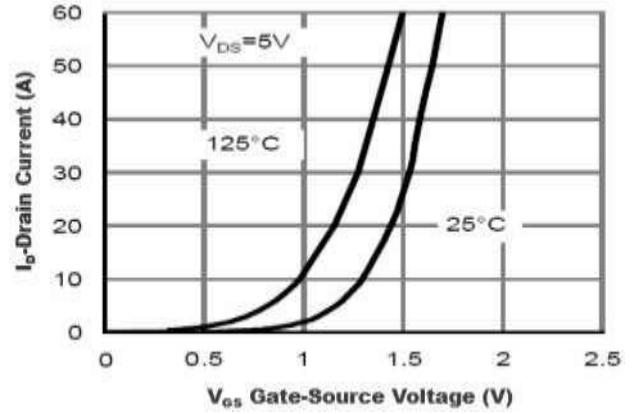


Figure2. Transfer Characteristics

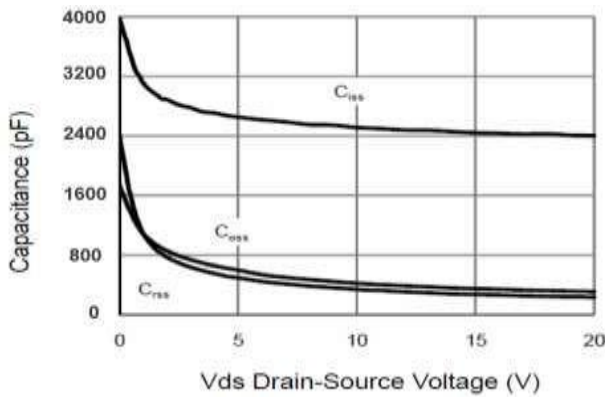


Figure3. Capacitance Characteristics

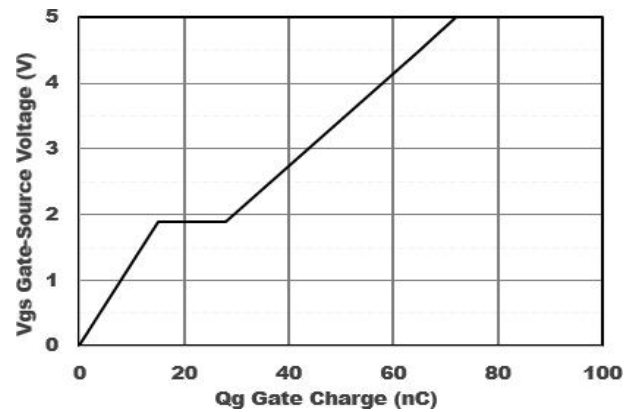


Figure4. Gate Charge

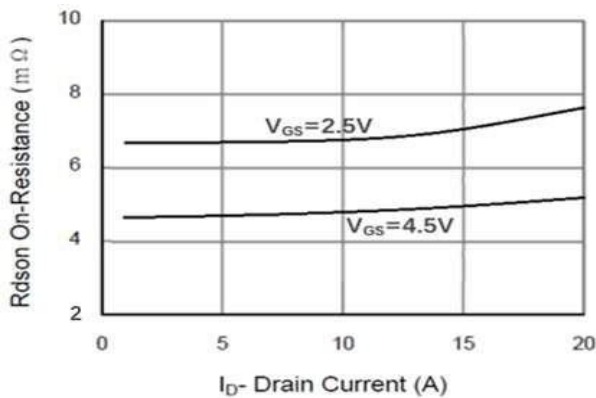


Figure5. Drain-Source on Resistance

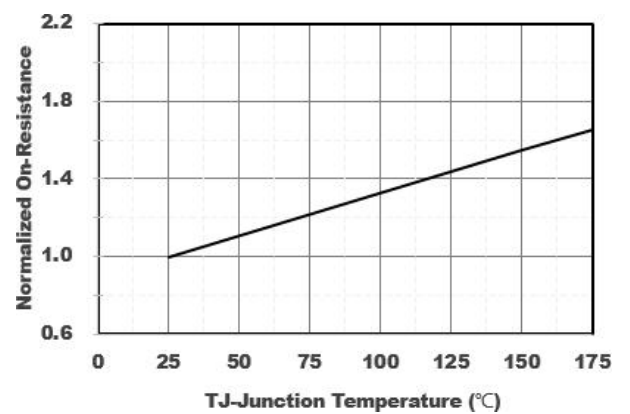


Figure6. Drain-Source on Resistance

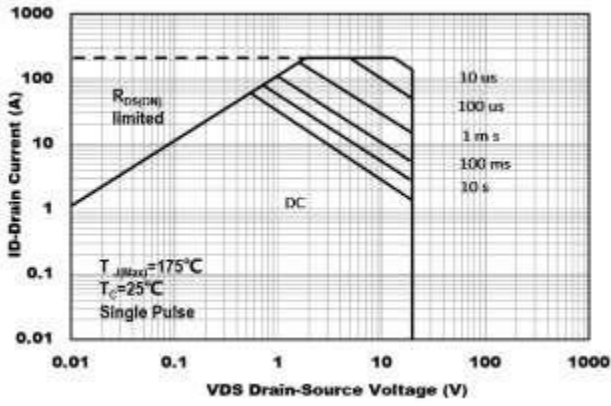


Figure7. Safe Operation Area

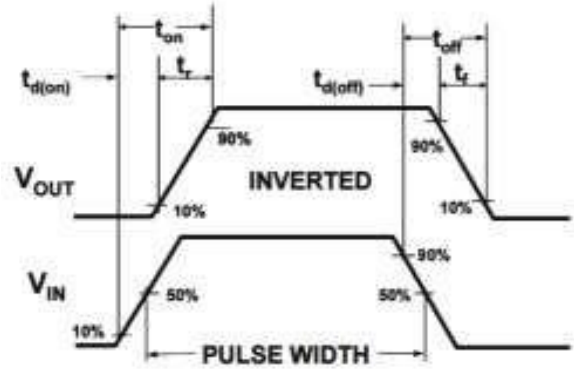
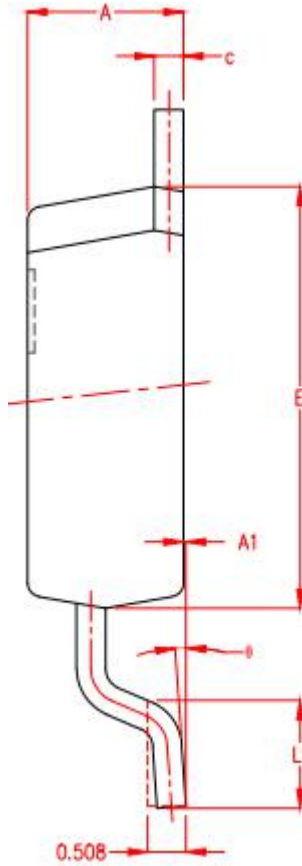
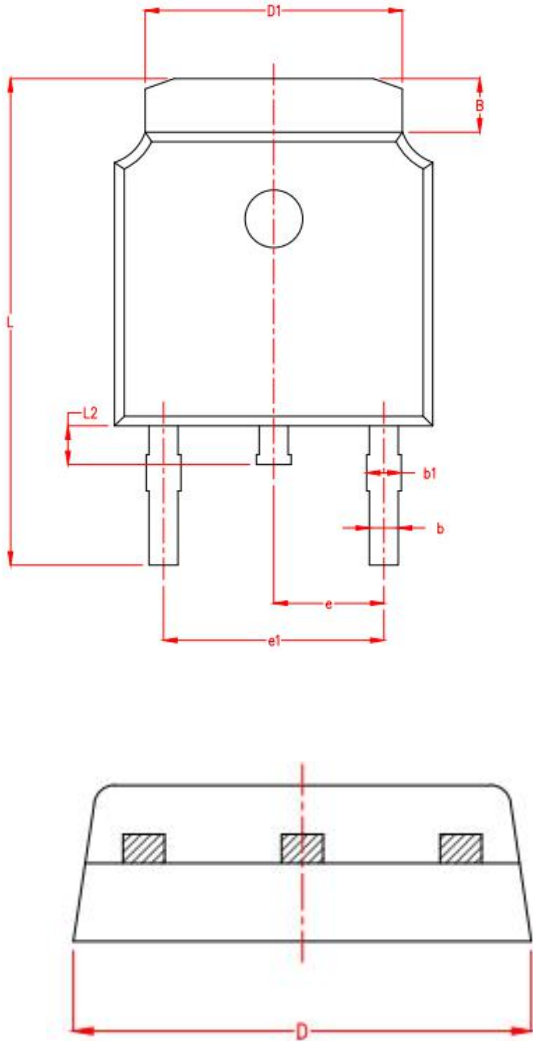


Figure8. Switching wave



TO-252 Package Information



SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	2.15	2.25	2.35
A1	0.00	0.06	0.12
B	0.96	1.11	1.26
b	0.59	0.69	0.79
b1	0.69	0.81	0.93
c	0.34	0.42	0.50
D	6.45	6.60	6.75
D1	5.23	5.33	5.43
E	5.95	6.10	6.25
e	2.286TYP.		
e1	4.47	4.57	4.67
L	9.90	10.10	10.30
L1	1.40	1.55	1.70
L2	0.60	0.80	1.00
$\theta$	0°	4°	8°