



Features

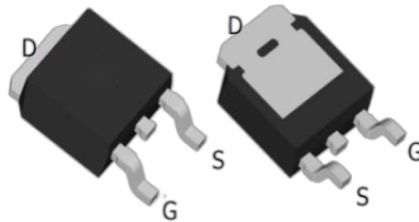
- Advanced Split Gate Trench Technology
- Excellent $R_{DS(on)}$ and Low Gate Charge
- Lead free product is acquired

Application

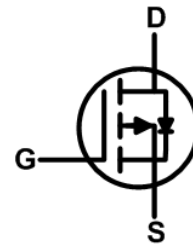
- Load Switch
- PWM Application
- Power management

Product Summary

V_{DS}	-100	V
$R_{DS(on), Typ} @ V_{GS}=10\text{ V}$	40	m Ω
I_D	-32	A



TO-252



P-channel

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

Symbol	Parameter	Max.	Units
V_{DSS}	Drain-Source Voltage	-100	V
V_{GSS}	Gate-Source Voltage	± 20	V
I_D	Continuous Drain Current	$T_C = 25^\circ\text{C}$	-32
		$T_C = 100^\circ\text{C}$	-22
I_{DM}	Pulsed Drain Current ^{note1}	-128	A
E_{AS}	Single Pulsed Avalanche Energy ^{note2}	361	mJ
P_D	Power Dissipation	$T_C = 25^\circ\text{C}$	107
$R_{\theta JC}$	Thermal Resistance, Junction to Case	1.16	$^\circ\text{C}/\text{W}$
T_J, T_{STG}	Operating and Storage Temperature Range	-55 to +150	$^\circ\text{C}$

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

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	-100	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=-100V, V_{GS}=0V,$	-	-	-1.0	μA
I_{GSS}	Gate to Body Leakage Current	$V_{DS}=0V, V_{GS}= \pm 20V$	-	-	± 100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1.0	-1.6	-2.5	V
$R_{DS(on)}$	Static Drain-Source on-Resistance <small>note3</small>	$V_{GS}=-10V, I_D=-20A$	-	40	52	m Ω
		$V_{GS}=-4.5V, I_D=-10A$	-	41	53	
Dynamic Characteristics						
C_{iss}	Input Capacitance	$V_{DS}=-50V, V_{GS}=0V,$ $f=1.0MHz$	-	7802	-	pF
C_{oss}	Output Capacitance		-	188	-	pF
C_{rss}	Reverse Transfer Capacitance		-	67	-	pF
Q_g	Total Gate Charge	$V_{DS}=-50V, I_D=-5A,$ $V_{GS}=-10V$	-	40	-	nC
Q_{gs}	Gate-Source Charge		-	7.8	-	nC
Q_{gd}	Gate-Drain("Miller") Charge		-	8.6	-	nC
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	$V_{DD}=-50V, I_D=-5A,$ $R_G=6\Omega, V_{GS}=-10V$	-	13	-	ns
t_r	Turn-on Rise Time		-	39	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	100.1	-	ns
t_f	Turn-off Fall Time		-	105.3	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	-	-32	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	-128	A
V_{SD}	Drain to Source Diode Forward Voltage	$V_{GS}=0V, I_S=-30A$	-	-	-1.2	V
t_{rr}	Body Diode Reverse Recovery Time	$T_J=25^\circ\text{C},$ $I_F=-5A, dI/dt=100A/\mu s$	-	104	-	ns
Q_{rr}	Body Diode Reverse Recovery Charge		-	280	-	nC

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

 2. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 0.5\%$

Typical Performance Characteristics

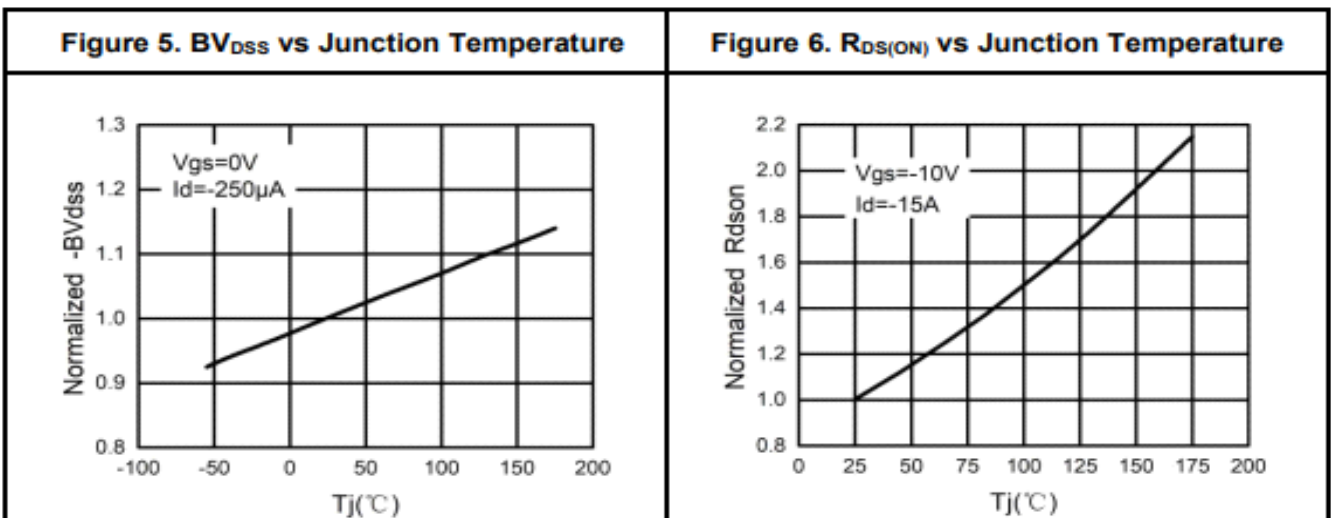
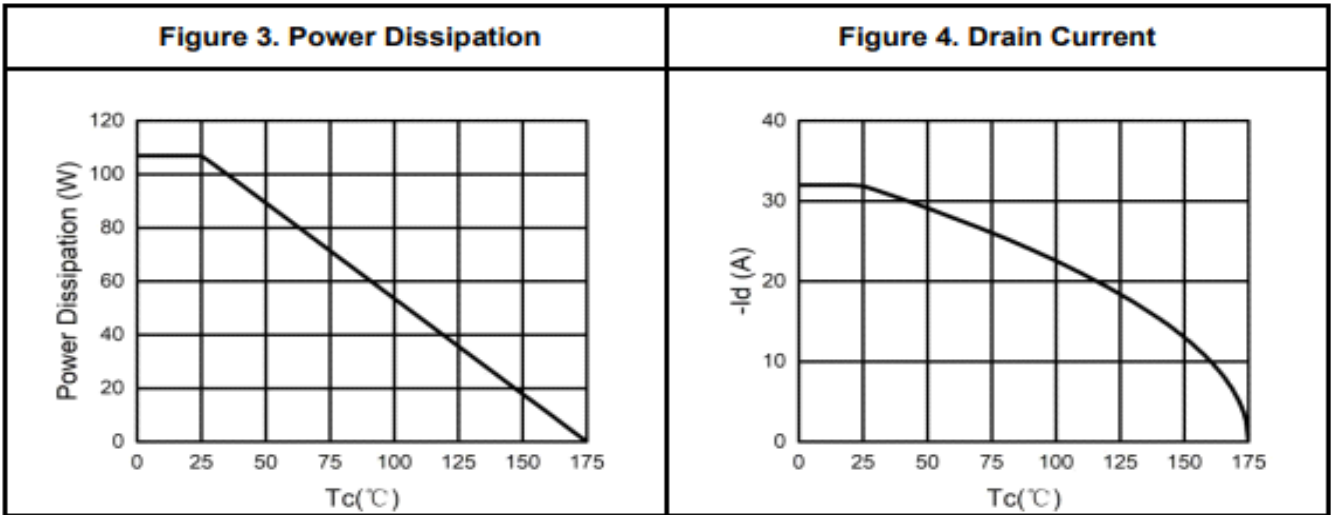
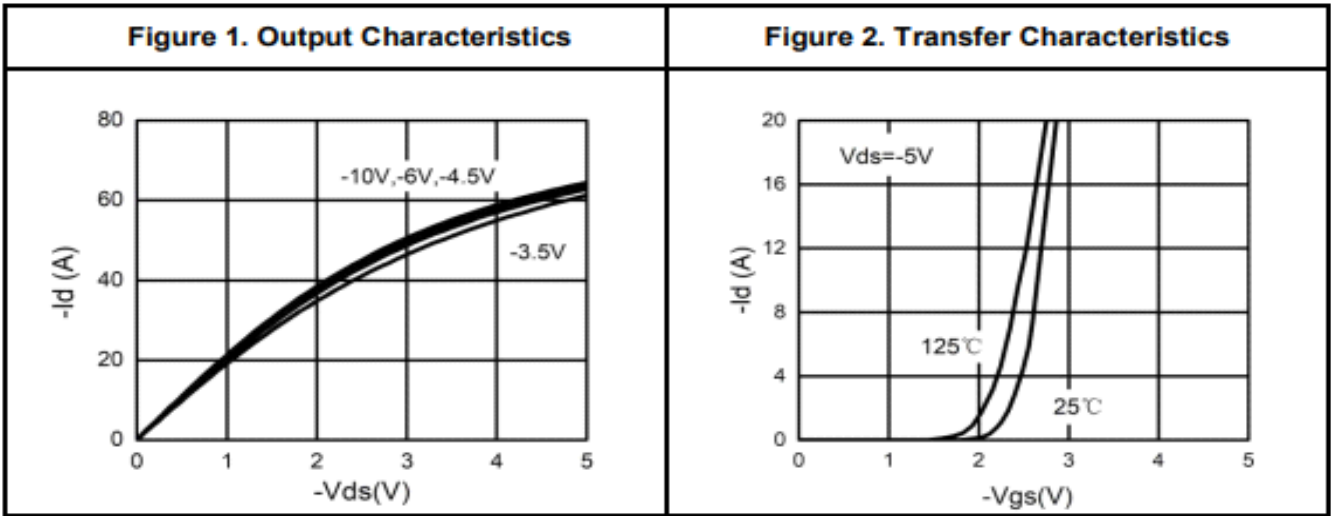


Figure 7. Gate Charge Waveforms

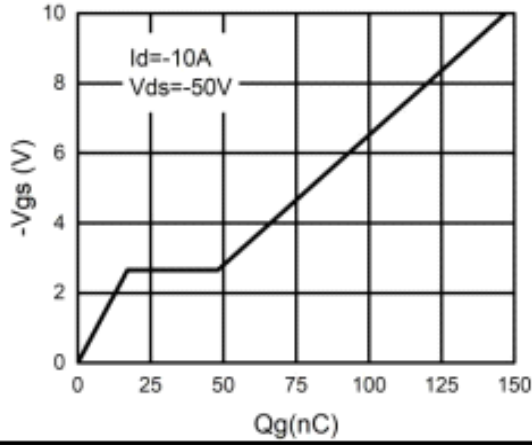


Figure 8. Capacitance

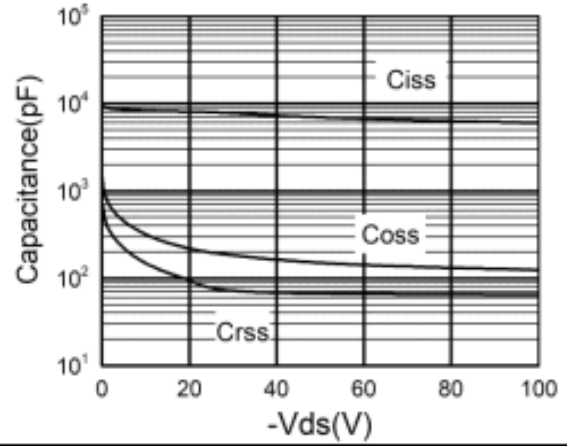


Figure 9. Body-Diode Characteristics

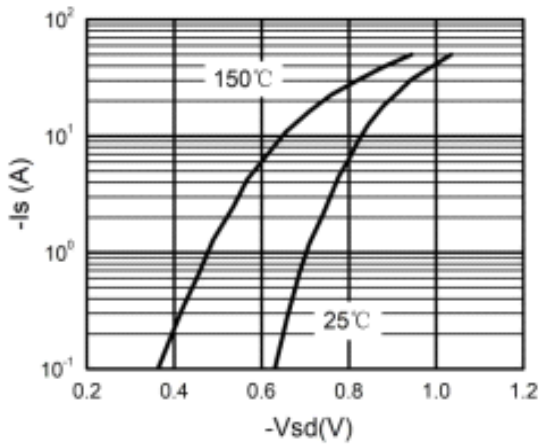
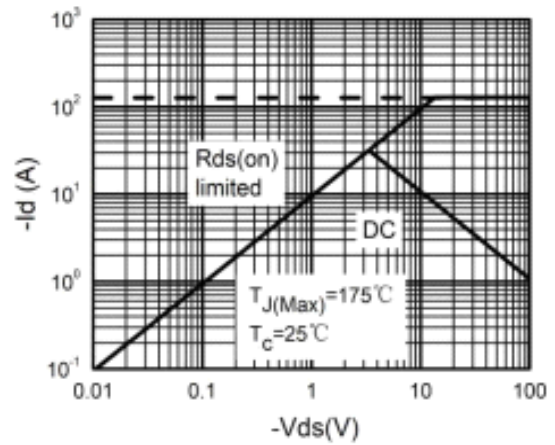


Figure 10. Maximum Safe Operating Area



Test Circuit & Waveform

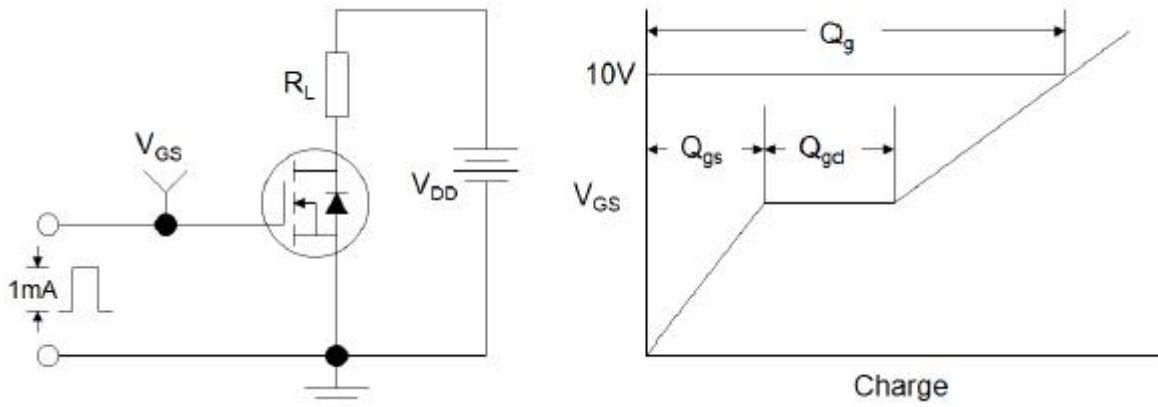


Figure1:Gate Charge Test Circuit & Waveform

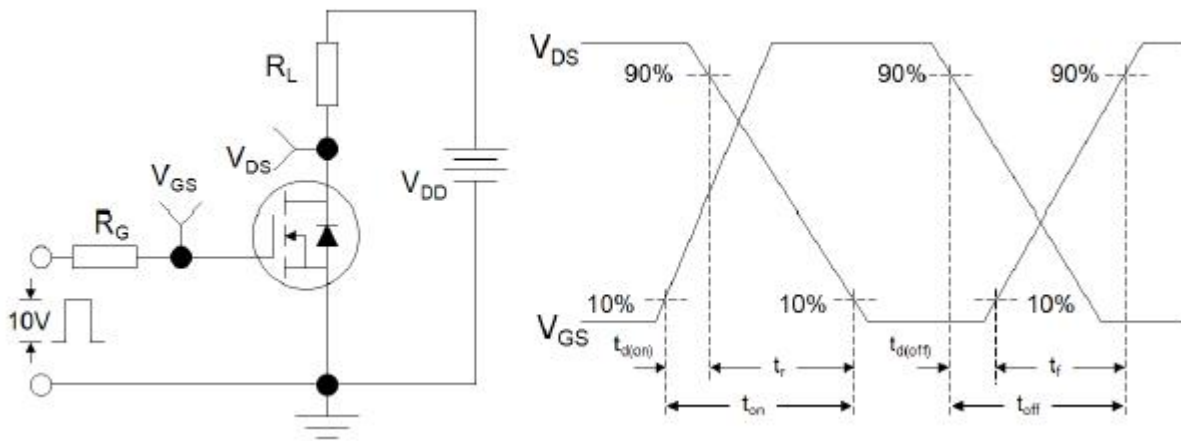


Figure 2: Resistive Switching Test Circuit & Waveforms

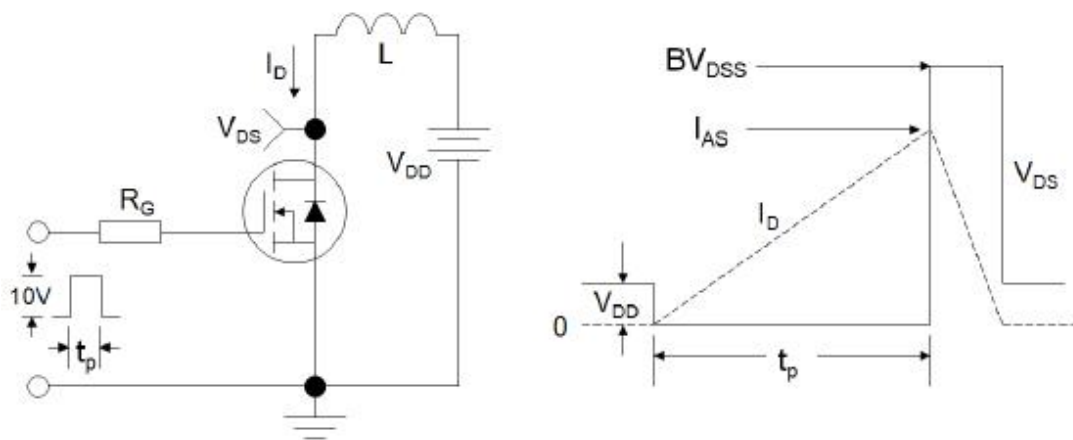
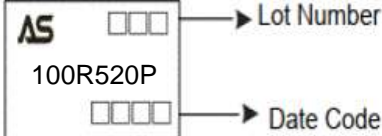


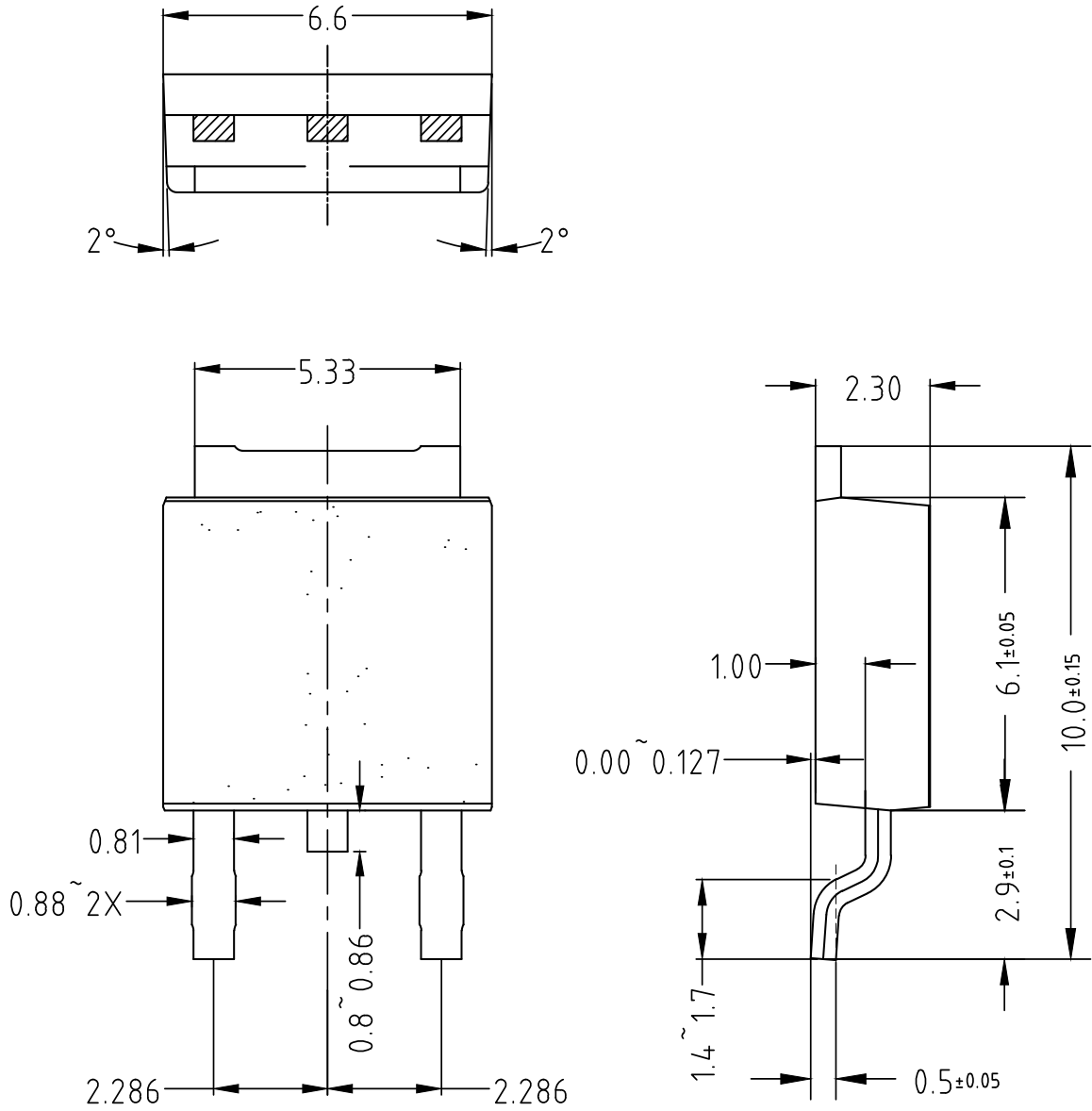
Figure 3:Unclamped Inductive Switching Test Circuit & Waveforms

Ordering and Marking Information

Ordering Device No.	Marking	Package	Packing	Quantity
ASDM100R520PKQ-R	100R520P	TO-252	Tape&Reel	2500/Reel

PACKAGE	MARKING
TO-252	 <p>AS □□□ → Lot Number 100R520P □□□□ → Date Code</p>

TO-252



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