



### General Features

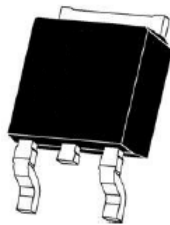
- Advanced groove technology is adopted
- Provide excellent RDS(ON)
- Low gate charge and operate at low gate voltage

### Application

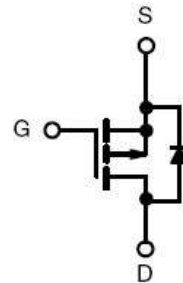
- Lithium battery protection
- Wireless impact
- Mobile phone fast charging

### Product Summary

BVDSS	-30	V
RDS(on).Typ.@VGS=-10V	5.0	mΩ
ID	-100	A



TO-252-2L top view



Schematic diagram

### Absolute Maximum Ratings (TC=25°C unless otherwise noted)

Symbol	Parameter	Max.	Units
VDSS	Drain-Source Voltage	-30	V
VGSS	Gate-Source Voltage	±20	V
ID	Continuous Drain Current T <sub>C</sub> = 25°C	-100	A
ID	Continuous Drain Current T <sub>C</sub> = 100°C	-59	A
IDM	Pulsed Drain Current <sup>note1</sup>	-400	A
EAS	Single Pulsed Avalanche Energy <sup>note2</sup>	210	mJ
PD	Power Dissipation T <sub>C</sub> = 25°C	109	W
TJ, TSTG	Operating and Storage Temperature Range	-55 to +175	°C

### Thermal Characteristics

Parameter	Symbol	Limit	Units
Thermal Resistance, Junction-to-Case	R <sub>θJC</sub>	3.0	°C/W
Thermal Resistance, Junction-to-Ambient	R <sub>θJA</sub>	50	°C/W

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

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
V(BR)DSS	Drain-Source Breakdown Voltage	VGS=0V, ID= -250μA	-30	-	-	V
IDSS	Zero Gate Voltage Drain Current	VDS= -30V, VGS=0V,	-	-	-1	μA
IGSS	Gate to Body Leakage Current	VDS=0V, VGS= ±20V	-	-	±100	nA
VGS(th)	Gate Threshold Voltage	VDS=VGS, ID= -250μA	-1.0	-1.5	-2.5	V
RDS(on)	Static Drain-Source on-Resistance	VGS= -10V, ID= -30A	-	5.0	6.0	mΩ
		VGS= -4.5V, ID= -20A	-	7.0	9.0	
Ciss	Input Capacitance	VDS= -15V, VGS=0V, f=1.0MHz	-	6560	-	pF
Coss	Output Capacitance		-	742	-	pF
Crss	Reverse Transfer Capacitance		-	700	-	pF
Qg	Total Gate Charge	VDS= -15V, ID= -30A, VGS= -10V	-	30	-	nC
Qgs	Gate-Source Charge		-	6	-	nC
Qgd	Gate-Drain("Miller") Charge		-	8	-	nC
td(on)	Turn-on Delay Time	VDD= -15V, ID= -30A, VGS= -10V, RGEN=2.5Ω	-	11	-	ns
tr	Turn-on Rise Time		-	13	-	ns
td(off)	Turn-off Delay Time		-	52	-	ns
tf	Turn-off Fall Time		-	21	-	ns
IS	Maximum Continuous Drain to Source Diode Forward Current		-	-	-100	A
ISM	Maximum Pulsed Drain to Source Diode Forward Current		-	-	-400	A
VSD	Drain to Source Diode Forward Voltage	VGS=0V, IS= -30 A		-0.8	-1.2	V

**Notes:**

- 1、Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
- 2、EAS condition: T<sub>J</sub> =25°C, V<sub>DD</sub> = -15V, V<sub>G</sub> = -10V, R<sub>G</sub> =25Ω, L=0.5mH, I<sub>AS</sub> = -29A
- 3、Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%

### Typical Characteristics

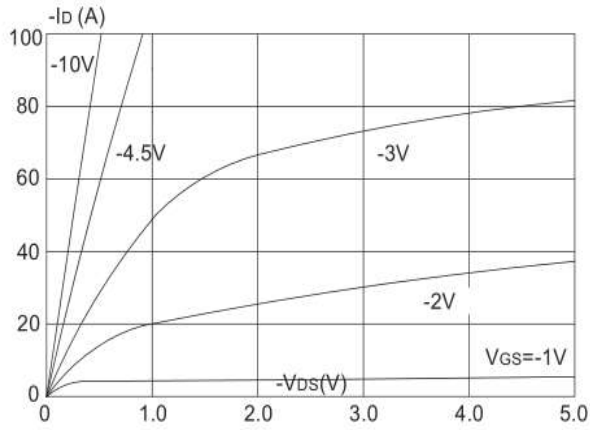


Figure 1: Output Characteristics

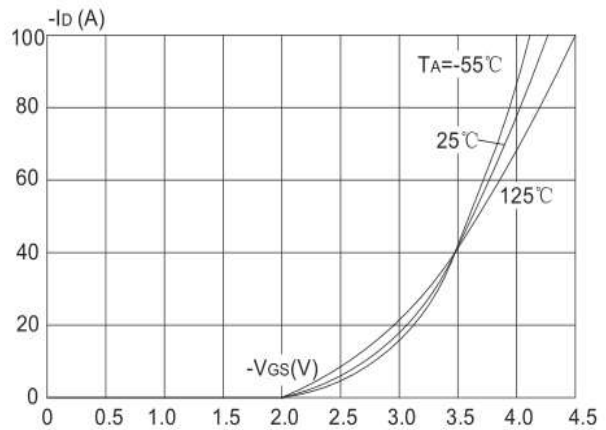


Figure 2: Typical Transfer Characteristics

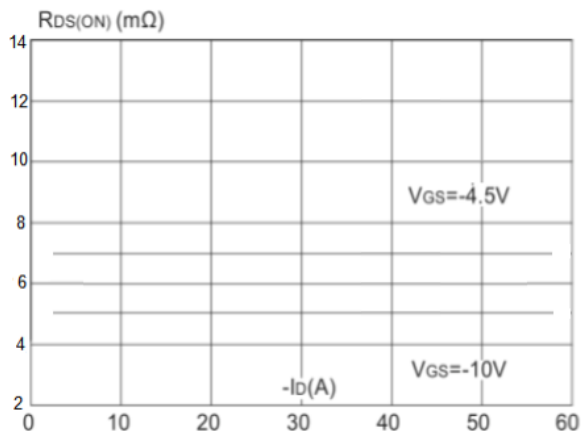


Figure 3: On-resistance vs. Drain Current

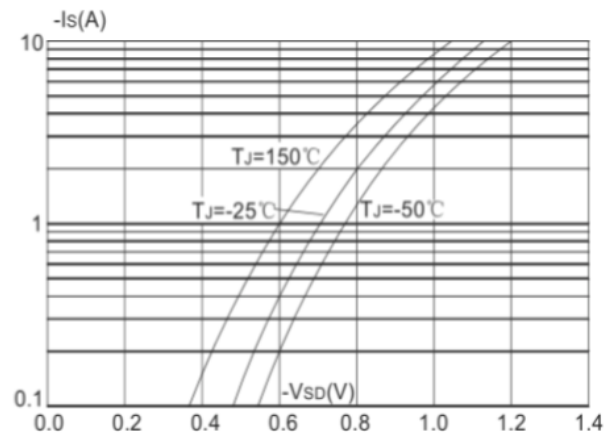


Figure 4: Body Diode Characteristics

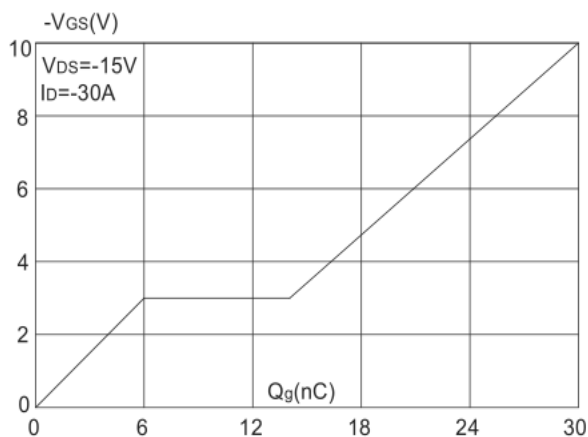


Figure 5: Gate Charge Characteristics

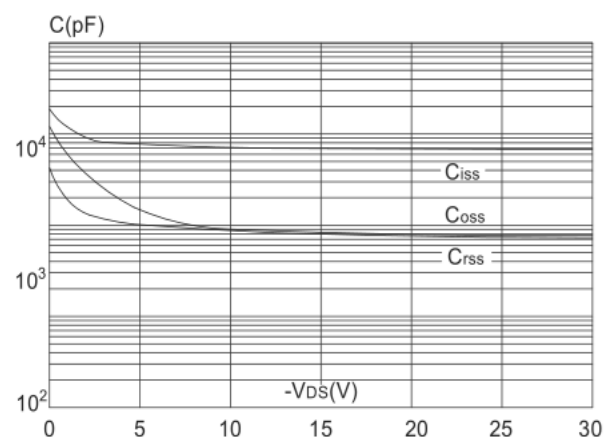
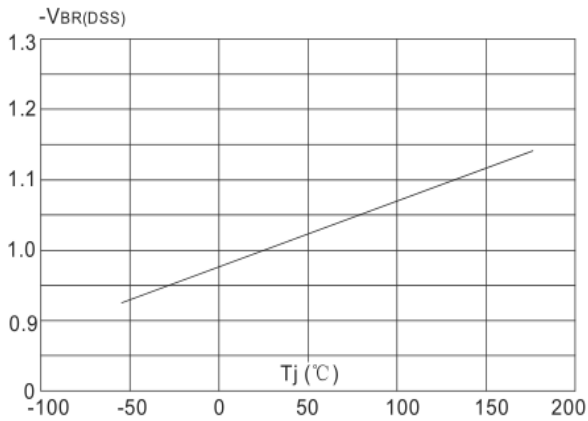
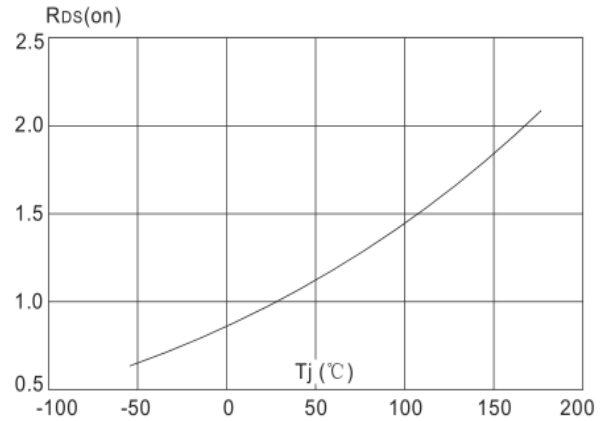


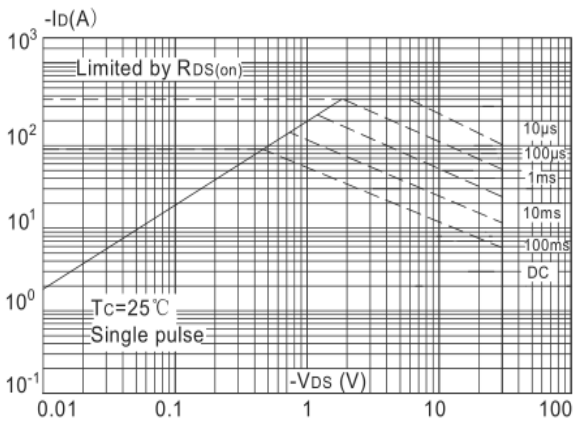
Figure 6: Capacitance Characteristics



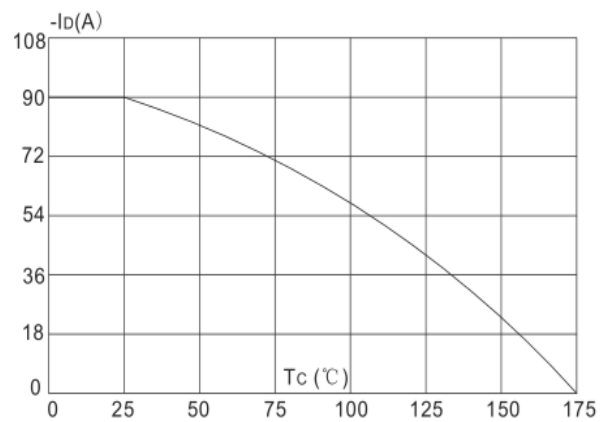
**Figure 7: Normalized Breakdown Voltage vs. Junction Temperature**



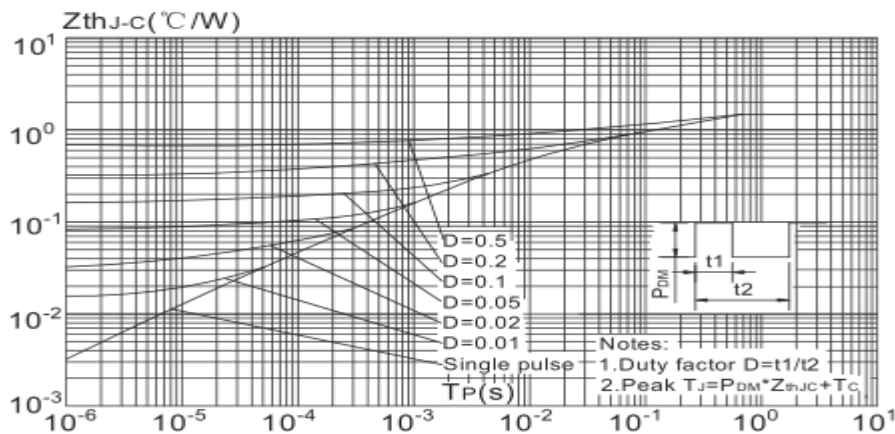
**Figure 8: Normalized on Resistance vs. Junction Temperature**



**Figure 9: Maximum Safe Operating Area**



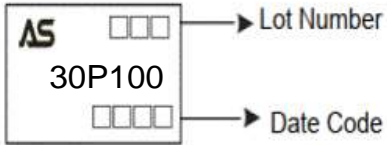
**Figure 10: Maximum Continuous Drain Current vs. Case Temperature**



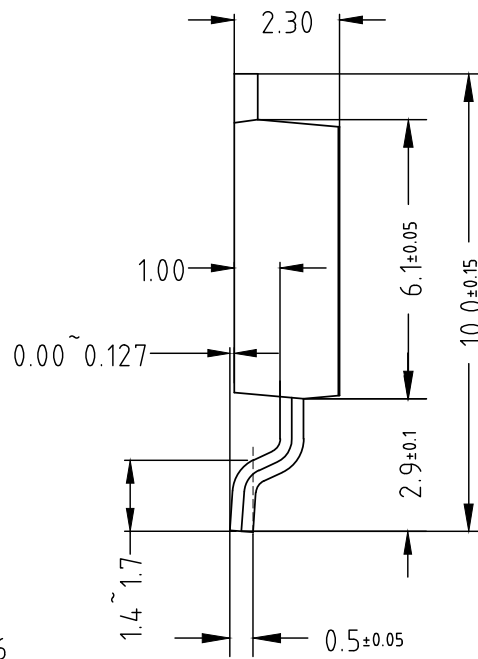
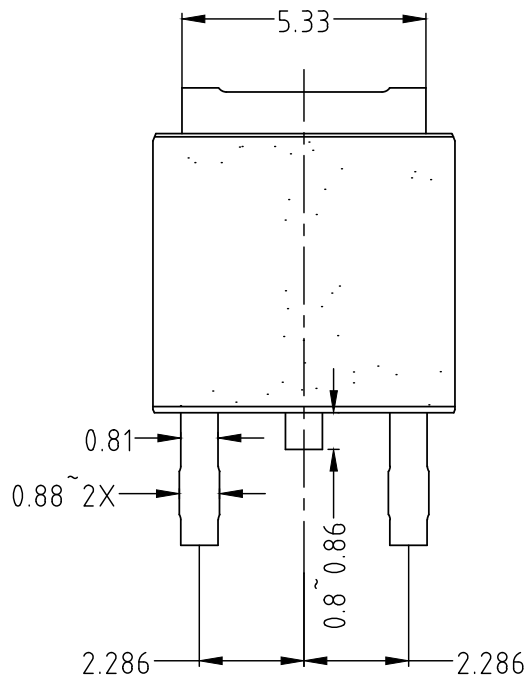
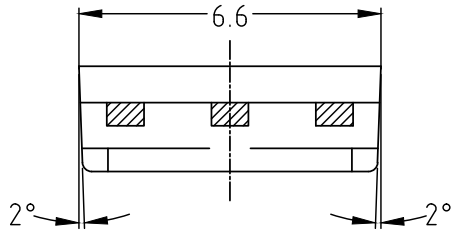
**Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case**

### Ordering and Marking Information

Ordering Device No.	Marking	Package	Packing	Quantity
ASDM30P100KQ-R	30P100	TO-252	Tape&Reel	2500/Reel

PACKAGE	MARKING
TO-252	 <p>AS    □□ → Lot Number 30P100 □□□□ → Date Code</p>

# TO-252



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