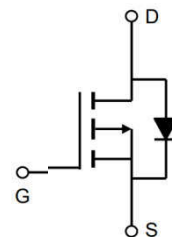


-60V P-CHANNEL ENHANCEMENT MODE MOSFET
MAIN CHARACTERISTICS

I_D	-80A
V_{DSS}	-60V
R_{DS(ON)-typ(@V_{GS}=-10V)}	< 14mΩ(Typ:9.8mΩ)


FEATURES

- Advanced Trench Technology
- Excellent R_{DS(ON)} and Low Gate Charge

APPLICATIONS

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


MECHANICAL DATA

- Case: Molded plastic
- Mounting Position: Any
- Molded Plastic: UL Flammability Classification Rating 94V-0
- Lead free in compliance with EU RoHS 2011/65/EU directive
- Solder bath temperature 275°C maximum, 10s per JESD 22-B106

TO-252
Maximum Ratings at T_c=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DSS}	-60	V
Gate - Source Voltage	V_{GSS}	±20	V
Continuous Drain Current	I_D	-80	A
Pulsed Drain Current (note1)	I_{DM}	-320	A
Single Pulsed Avalanche Energy	E_{AS}	420	mJ
Power Dissipation	P_D	110	W
Operating Temperature Range	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C
Thermal Resistance Junction to Case	R_{θJC}	1.1	°C/W
Thermal Resistance, Junction to Ambient	R_{θJA}	60	°C/W

Note1:Pulse test: 300 μs pulse width, 2 % duty cycle

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

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	V _{GS} =0V, I _D = -250μA	BV_{DSS}	-60	-	-	V
Zero Gate Voltage Drain Current	V _{DS} = -60V, V _{GS} =0V,	I_{DSS}	-	-	-1	μA
Gate to Body Leakage Current	V _{DS} =0V, V _{GS} = ±20V	I_{GSS}	-	-	±100	nA
Gate Threshold Voltage	V _{DS} =V _{GS} , I _D = -250μA	V_{GS(th)}	-1	-	-2	V
Static Drain-Source on-Resistance	V _{GS} = -10V, I _D = -10A	R_{DS(ON)}	-	9.8	14	mΩ
	V _{GS} = -4.5V, I _D = -5A		-	11.5	6	mΩ
Input Capacitance	V _{DS} =-15V V _{GS} =0V f=1.0MHz	C_{iss}	-	3350	-	pF
Output Capacitance		C_{oss}	-	600	-	
Reverse Transfer Capacitance		C_{rss}	-	23	-	
Turn-on Delay Time(Note2)	V _{DD} = -30V I _{DO} = -30A V _{GS} = -10V R _{GEN} =3Ω	t_{d(on)}	-	4.1		ns
Turn-on Rise Time(Note2)		T_r	-	2.2		ns
Turn-off Delay Time(Note2)		t_{d(OFF)}	-	14.3		ns
Turn-off Fall Time(Note2)		t_f	-	3.5		ns
Total Gate Charge(Note2)		Q_g	-	53		nC
Gate to Source Charge(Note2)	V _{DS} = -30V I _D = -20A V _{GS} = -10V	Q_{gs}	-	10		nC
Gate to Drain Charge(Note2)		Q_{gd}	-	9		nC
Maximun Body-Diode Continuous Current		I_S	-	-	-80	A
Maximun Body-Diode Pulsed Current(Note2)		I_{SM}	-	-	-320	A
Drain to Source Diode Forward Voltage	V _{GS} =0V, I _S = -1A, T _J =25°C	V_{SD}	-	-	-1.2	V

Note2:Pulse test: 300 μs pulse width, 2 % duty cycle

RATINGS AND CHARACTERISTIC CURVES

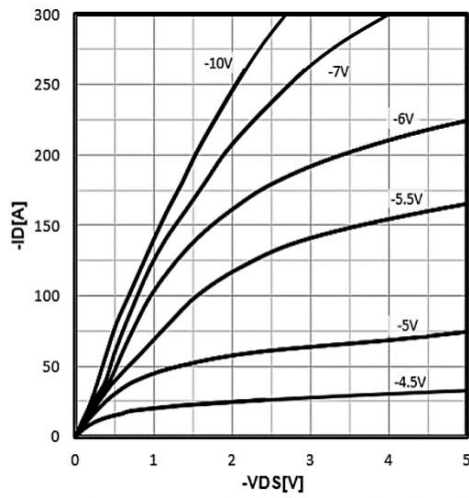


Figure 1. Type. Output Characteristics ($T_j=25\text{ }^\circ\text{C}$)

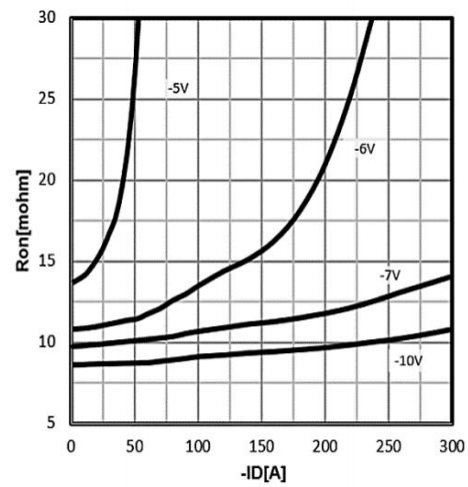


Figure 2. Type. drain-source on resistance

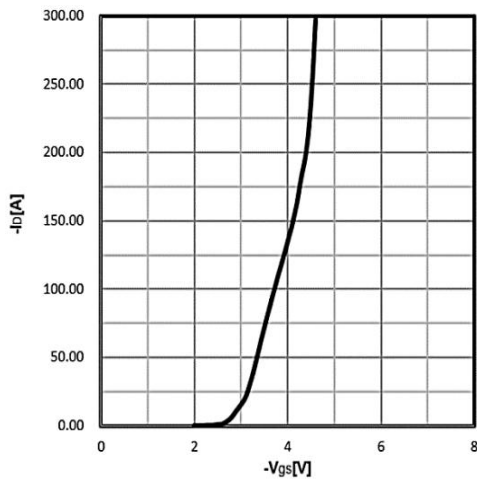


Figure 3. Type. transfer characteristics

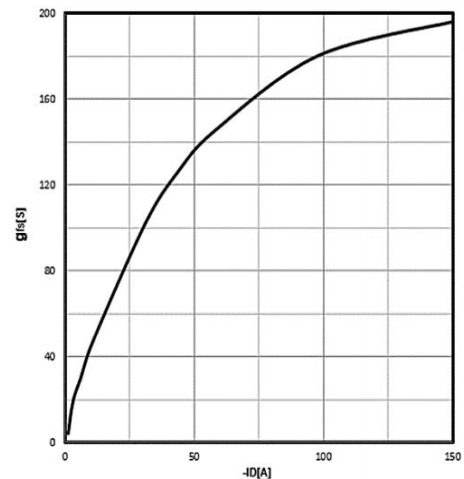


Figure 4. Type. forward transconductance

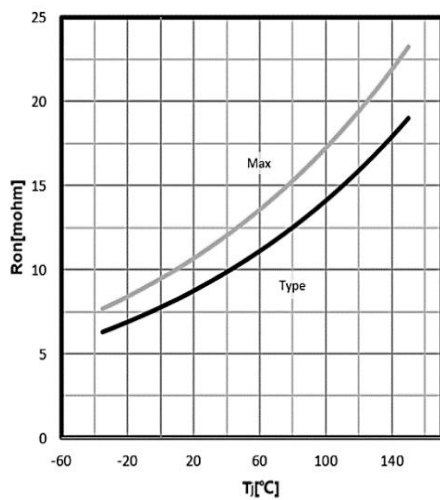


Figure 5. Drain-source on-state resistance $R_{DS(on)} = f(T_j)$; $I_D = 80\text{A}$; $V_{GS} = 10\text{V}$

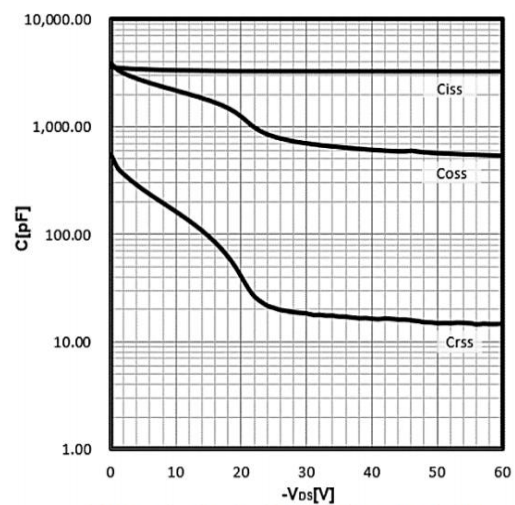


Figure 6. Body-Diode Characteristics $C = f(V_{DS})$; $V_{GS} = 0\text{V}$; $f = 1\text{MHz}$

RATINGS AND CHARACTERISTIC CURVES

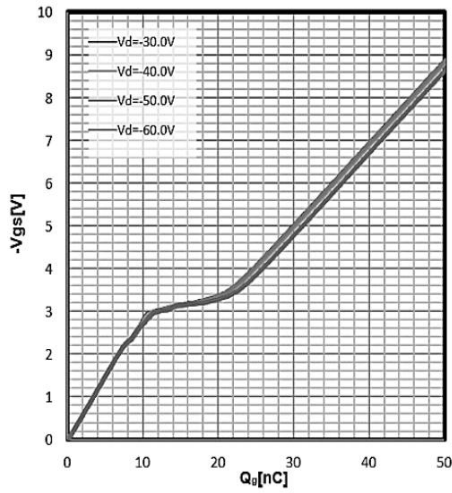


Figure 7. Typ. gate charge
 $V_{GS} = f(Q_{gate})$; $I_D = 20A$

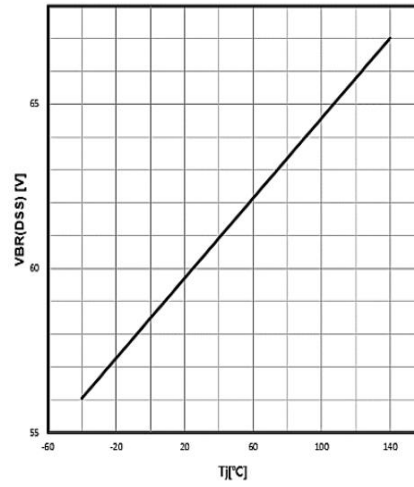


Figure 8. Drain Current Derating
 $V_{BR}(DSS) = f(T_j)$; $I_D = 250\mu A$

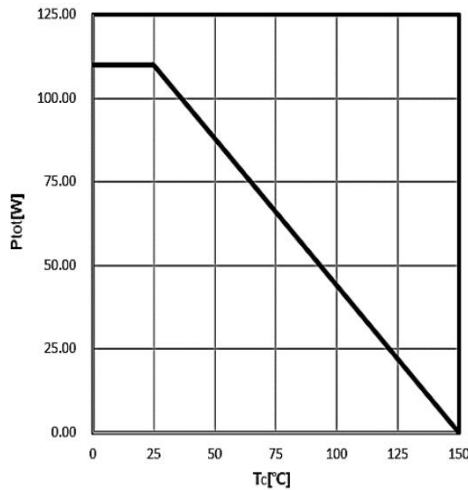


Figure 7. Power Dissipation

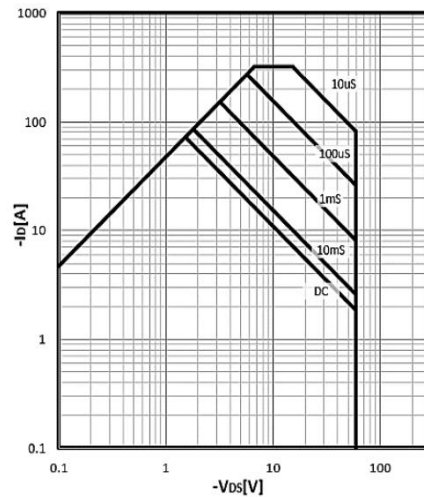


Figure 8. Safe operating area

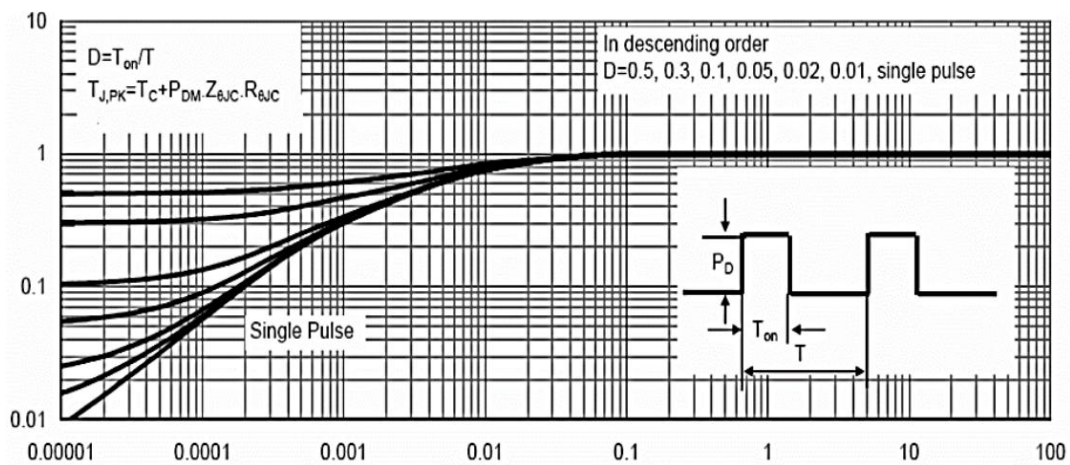


Figure 10. Max. transient thermal impedance

$Z_{thJC} = f(t_p)$

Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
SQD50P06-15L	TO-252	0.011oz(0.32g)	2500pcs/reel	5000pcs/box 25000pcs/Carton

Package Dimensions

TO-252

Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	2.20	2.50	0.087	0.098
A1	0.00	0.12	0.000	0.005
A2	2.20	2.40	0.087	0.094
B	1.20	1.60	0.047	0.063
b	0.50	0.70	0.020	0.028
b1	0.70	0.90	0.028	0.035
c	0.40	0.60	0.016	0.024
c1	0.40	0.60	0.016	0.024
D	6.35	6.65	0.250	0.262
D1	5.20	5.40	0.205	0.213
E	5.40	5.70	0.213	0.224
e	2.20	2.40	0.087	0.094
e1	4.40	4.80	0.173	0.189
L	10.00	11.00	0.393	0.433
L1	2.70	3.10	0.106	0.122
L2	1.40	1.80	0.055	0.071
L3	0.90	1.50	0.035	0.059