Description：

This P-Channel MOSFET uses advanced trench technology
and design to provide excellent $R_{DS(on)}$ with low gate charge.
It can be used in a wide variety of applications.

TO-263

Drain (Pin 2,TAB)

Gate (Pin 1)

Power Source (Pin 3)

Features：

◆ V_{DS}=-60V,I_D=-65A,$R_{DS(ON)}$<20mΩ@V_{GS}=-10V

◆ Low gate charge.

◆ Green device available.

◆ Advanced high cell denity trench technology for ultra low $R_{DS(ON)}$.

◆ Excellent package for good heat dissipation.
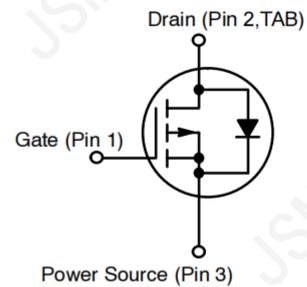
Absolute Maximum Ratings： (T_C=25℃ unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	-60	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Continuous Drain Current-T_C=25℃	-65	A
	Continuous Drain Current-T_C=100℃	-45	A
I_{DM}	Pulsed Drain Current1	-280	A
P_D	Total Power Dissipation	280	W
E_{AS}	Single Pulsed Avalanche Energy	750	mJ
T_J,T_{STG}	Operating and Storage Junction Temperature Range	-55to+150	℃

Thermal Characteristics：

Symbol	Parameter	Max	Units
$R_{θJC}$	Thermal Resistance,Junction to Case	0.44	℃/W

Electrical Characteristics： (Tc=25℃ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV_{DSS}	Drain-Sourtce Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	-60	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{GS}=0V, V_{DS}=-60V$	---	---	-1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm20V, V_{DS}=0A$	---	---	±100	nA
On Characteristics						
$V_{GS(th)}$	GATE-Source Threshold Voltage	$V_{GS}=V_{DS}, I_D=-250\mu A$	-1.1	-1.6	-2.2	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=-10V, I_D=-20A$	---	16.5	20	mΩ
		$V_{GS}=-4.5V, I_D=-20A$		18.5	22	
Dynamic Characteristics						
C_{iss}	Input Capacitance	$V_{DS}=-20V, V_{GS}=0V, f=1MHz$	---	4399	---	pF
C_{oss}	Output Capacitance		---	258	---	
C_{rss}	Reverse Transfer Capacitance		---	211	---	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	$V_{DD}=-30V, I_D=-20A, V_{GS}=-10V$ $R_G=1\Omega$	---	23	---	ns
t_r	Rise Time		---	17	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	55	---	ns
t_f	Fall Time		---	29	---	ns
Q_g	Total Gate Charge	$V_{GS}=-10V, V_{DS}=-30V, I_D=-20A$	---	114	---	nC
Q_{gs}	Gate-Source Charge		---	27.3	---	nC
Q_{gd}	Gate-Drain" Miller" Charge		---	49	---	nC
Drain-Source Diode Characteristics						
V_{SD}	Drain Diode Forward Voltage	$V_{GS}=0V, I_S=-20A$	---	---	-1.2	V
I_S	Continuous Source Current	$V_G=V_D=0V$	---	---	-65	A
I_{SM}	Pulsed Source Current		---	---	-280	A
T_{rr}	Reverse Recovery Time	$TJ=25°C, IF=-20A,$ $di/dt=100A/\mu s$	---	117	---	nS
Q_{rr}	Reverse Recovery Charge		---	420	---	nC

Notes:

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

2. EAS condition: T J =25℃, VDD =-25V, VG =-5V, RG =25Ω, L=0.5mH, IAS

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

Typical Characteristics： (Tc=25℃ unless otherwise noted)
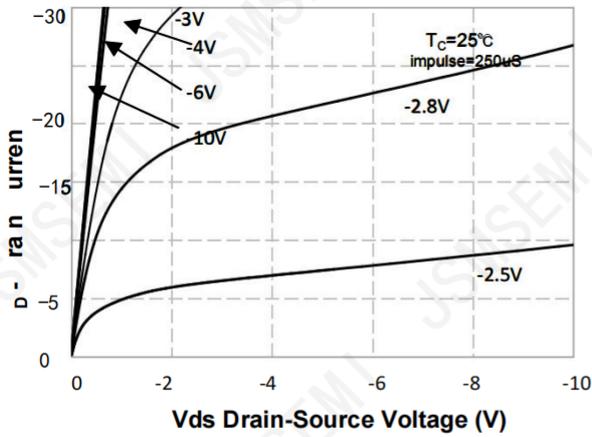

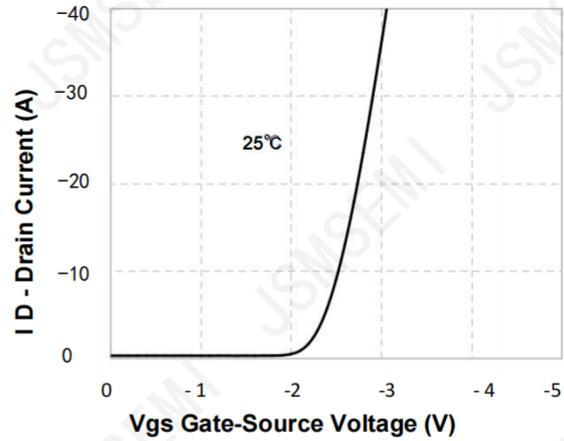**Figure 1. On-Region Characteristics**
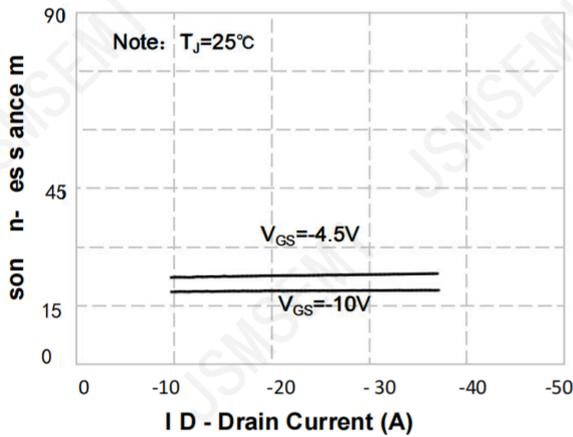

Figure 2. Transfer Characteristics

Figure 3. On-Resistance Variation vs Drain Current and Gate Voltage
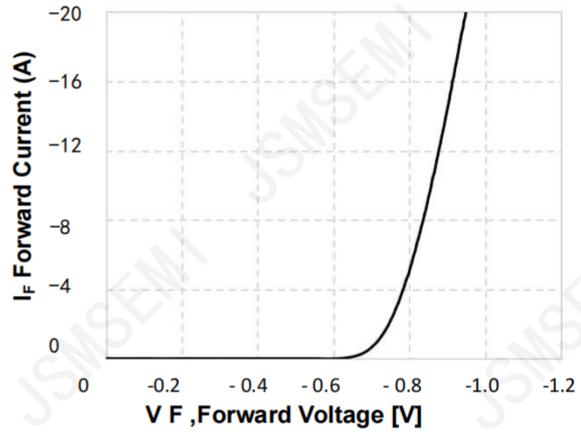

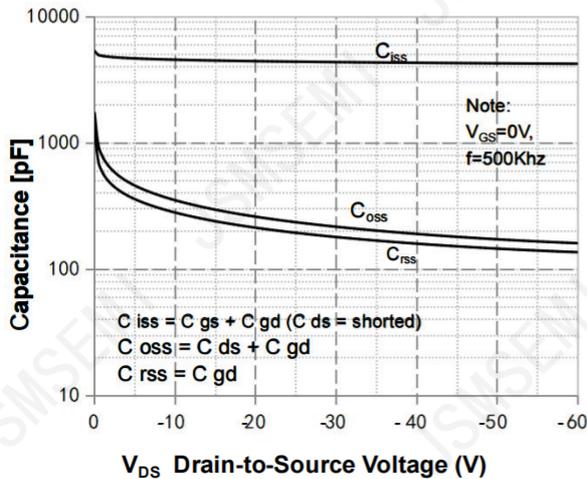**Figure 4. Body Diode Forward Voltage Variation with Source Current and Temperature**
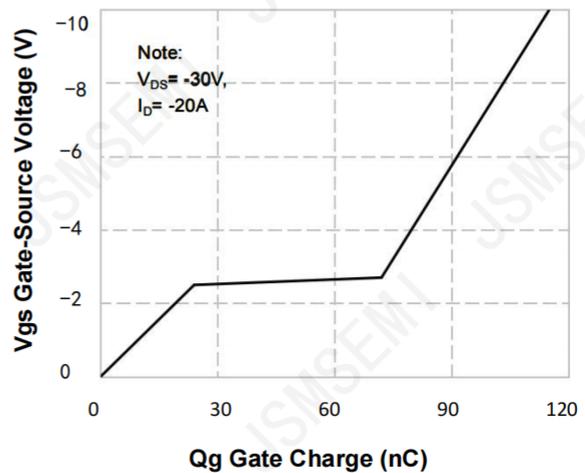

Figure 5. Capacitance Characteristics
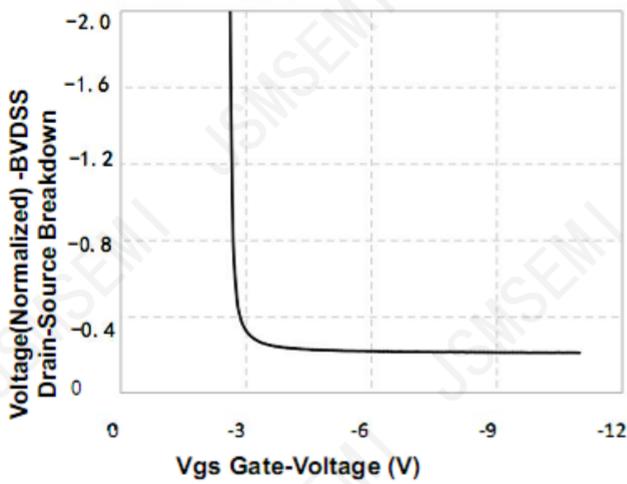

Figure 6. Gate Charge Characteristics
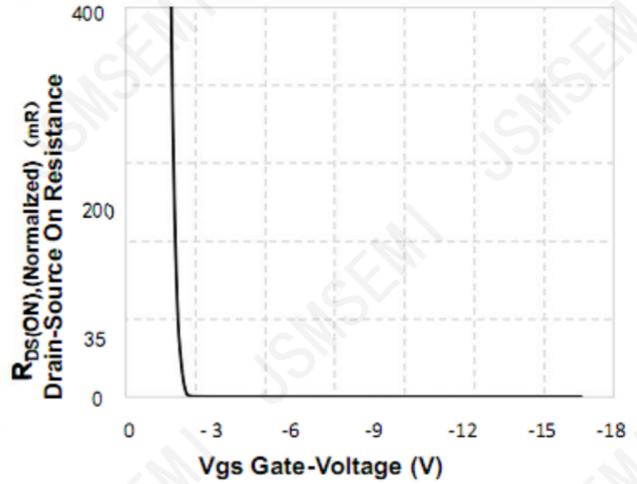
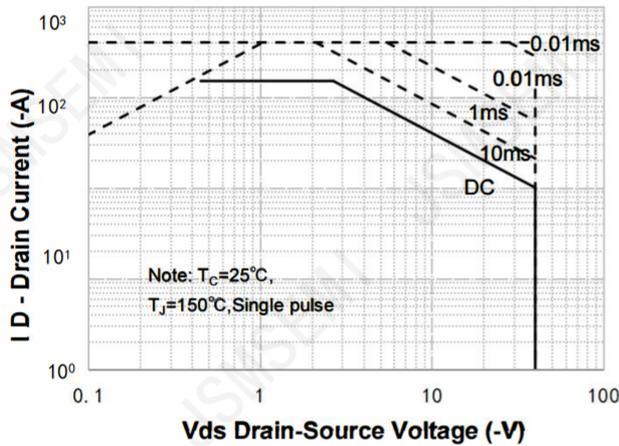Figure 7. Breakdown Voltage Variation vs Gate-Voltage

Figure 8. On-Resistance Variation vs Gate Voltage

Figure 9. Maximum Safe Operating Area
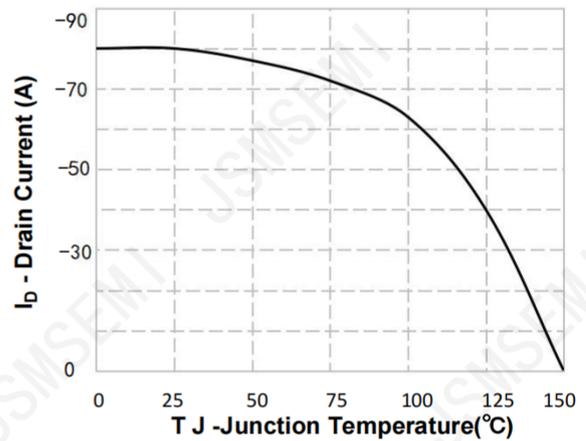
Figure 10. Maximum PContinuous Drain Currentvs Case Temperature

$T_j - T_C = P_{DM} * Z_{\theta jc(t)}$
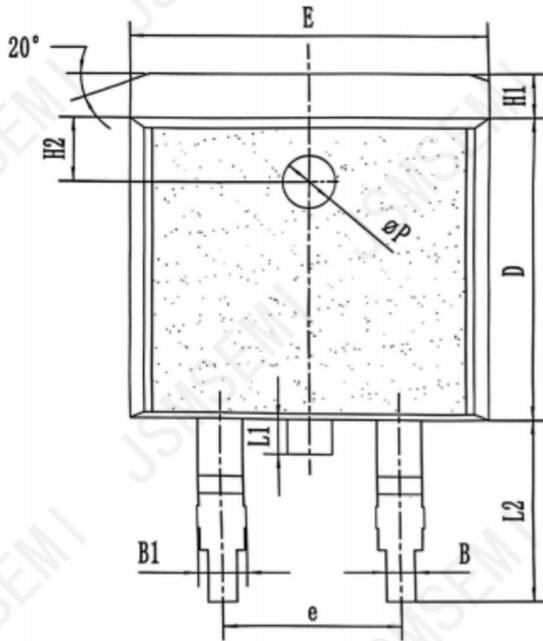Duty Factor: D=t1/t2
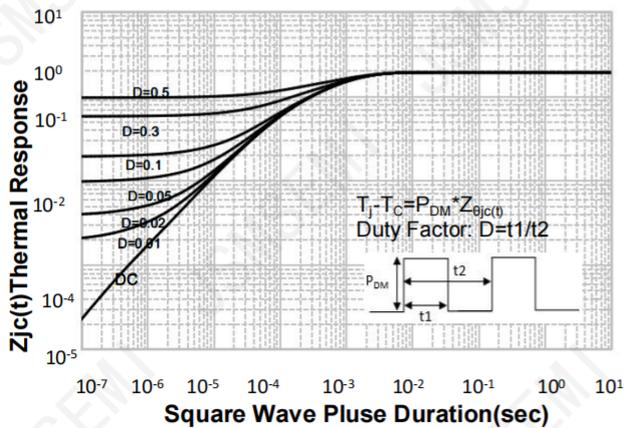
Figure 11. Transient Thermal Response Curve

Package Information

TO-263

Unit: mm
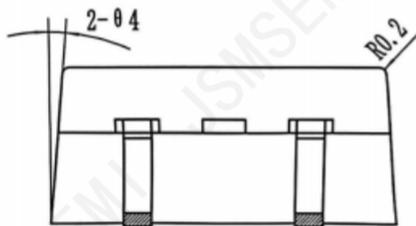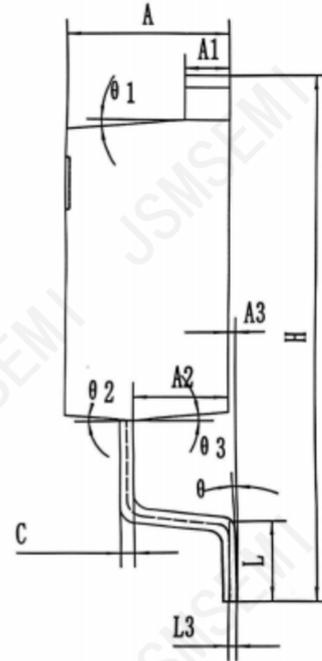
COMMON DIMENSIONS			
SYMBOL	MM		
	MIN	NOM	MAX
*A	4.50	4.60	4.70
*A1	1.22	1.27	1.32
A2	2.57	2.67	2.77
*A3	0.00		0.20
*B	0.76	0.81	0.87
B1	1.32	1.37	1.42
*C	0.33	0.38	0.43
*D	8.55	8.65	8.75
*e	5.08 BSC		
*E	10.06	10.16	10.26
*H	14.80	15.00	15.20
H1	1.17	1.27	1.37
H2	1.85 REF		
*L	2.09	2.39	2.69
L1	0.80	1.00	1.20
L2	4.88	5.08	5.28
L3	0.25 REF		
φP	1.40	1.50	1.60
θ	0°		8°
θ1	3°	5°	7°
θ2	3°	5°	7°
θ3	3°	5°	7°
θ4	3°	5°	7°
带*为检验尺寸			

Revision History

Rev.	Change		Date
V1.0	Initial version		2/23/2024

Important Notice