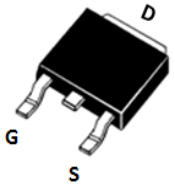
100V N-Channel Power MOSFET

DESCRIPTION：
- High Speed Power Switching
- Reliable and Rugged
- ROHS Compliant & Halogen-Free
- 100% UIS Tested

V_{DSS}	100V
I_D	122A
$R_{DS(ON)_Max.}$ @V_{GS}=10V	4.6mΩ

TYPICAL APPLICATIONS：
- Synchronous Rectification in SMPS
- Hard Switching and High Speed Circuit



TO-263

MAXIMUM RATINGS (at T_C = 25 °C, unless otherwise specified)

Characteristic	Condition	Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current(1)	Tc=25℃ Tc=100℃	I_D	122 122	A
Pulsed Drain Current		I_{DM}	380	A
Avalanche Current(2)	L=0.1mH	I_{AS}	56	A
Avalanche Energy(2)	L=0.5mH	E_{AS}	225	mJ
Power dissipation	Tc=25℃ Tc=100℃	P_D	2.0 1.3	W
Junction & Storage temperature Range		T_J, T_{STG}	-55~+150	℃

Notes:1. Max. current is limited by bonding wire.
2. UIS tested and pulse width are limited by maximum junction temperature 150°C.
3. Surface Mounted on 1in2 FR-4 board with 1oz.

THERMAL CHARACTERISTICS

Characteristic	Condition	Symbol	Value	Unit
Thermal resistance,	Junction to Ambient(3) Junction-to-Case	$R_{\theta JA}$ $R_{\theta JC}$	62 0.65	℃/W

ELECTRICAL CHARATERISTICS (at T_J = 25 °C, unless otherwise specified)

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage VGS = 0V, ID = 250uA	$V_{(BR)DSS}$	100			V
Zero Gate Voltage Drain Current VDS = 80 V, VGS = 0 V	I_{DSS}			1.0	uA
Gate-Source Leakage Current VGS = ±20V, VDS = 0V	I_{GSS}			±100	nA
Gate-Source threshold voltage VDS = VGS, ID = 250uA	$V_{GS(th)}$	2.0	3.0	4.0	V
Drain-Source On-State Resistance VGS = 10V, ID =20A	$R_{DS(on)}$		3.9	4.6	mΩ
Diode Forward Voltage IS =10A, VGS = 0V	V_{SD}		0.75	1.1	V
Diode Continuous Current	I_S			175	A
Input capacitance f=1MHz, VDS=50 V, VGS=0 V	C_{iss}		4176		pF
Output capacitance f=1MHz, VDS=50 V, VGS=0 V	C_{oss}		1190		pF
Reverse transfer capacitance f=1MHz, VDS=50 V, VGS=0 V	C_{rss}		36		pF
Gate Resistance VGS = 0V, VDS= 0V, f = 1MHz	R_G		0.54		Ω
Total Gate Charge VDS=50V, ID= 20A, VGS= 10V	Q_G		72.7		nC
Gate to Source Charge VDS=50V, ID= 20A, VGS= 10V	Q_{GS}		21.6		nC
Gate to Drain Charge VDS=50V, ID= 20A, VGS= 10V	Q_{GD}		20.7		nC
Turn-on delay time VDS= 25V, VGS= 10V, ID= 1A, R_{GEN}=3Ω	$td_{(ON)}$		12.9		ns
Rise time VDS= 25V, VGS= 10V, ID= 1A, RGEN=3Ω	tr		6.4		ns
Turn-off delay time VDS= 25V, VGS= 10V, ID= 1A, RGEN=3Ω	$td_{(OFF)}$		34.9		ns
Fall time VDS= 25V, VGS= 10V, ID= 1A, RGEN=3Ω	tf		65.6		ns
Revers Recovery Time IF=10A, VR=50V ,di/dt = 100A/us	Trr		40.4		ns
Revers Recovery Charge IF=10A, VR=50V ,di/dt = 100A/us	Qrr		80.2		nC

Typical Performance Characteristics

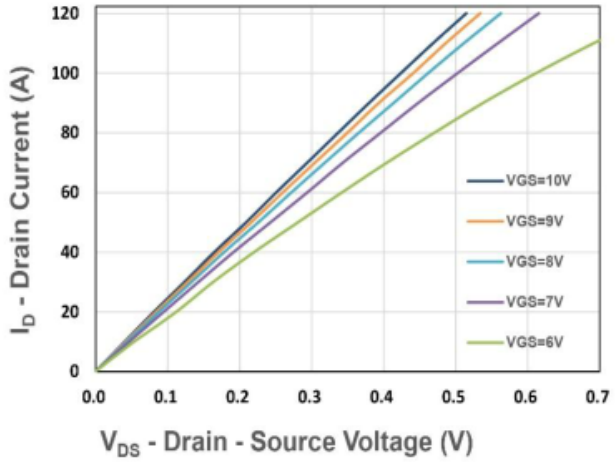


Figure 1. Output Characteristics

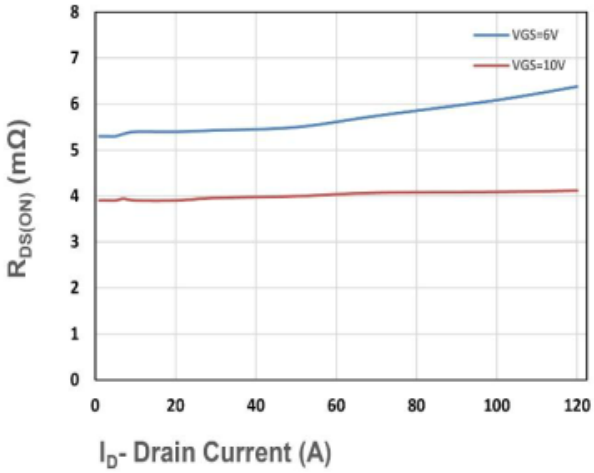


Figure 2. On-Resistance vs ID.

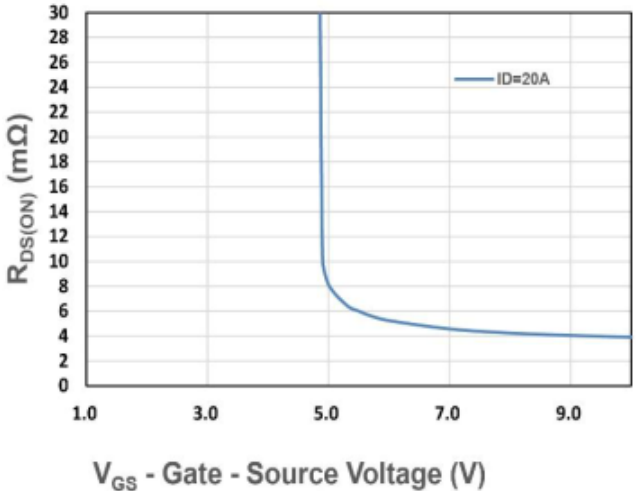


Figure 3. On-Resistance vs V_{GS}

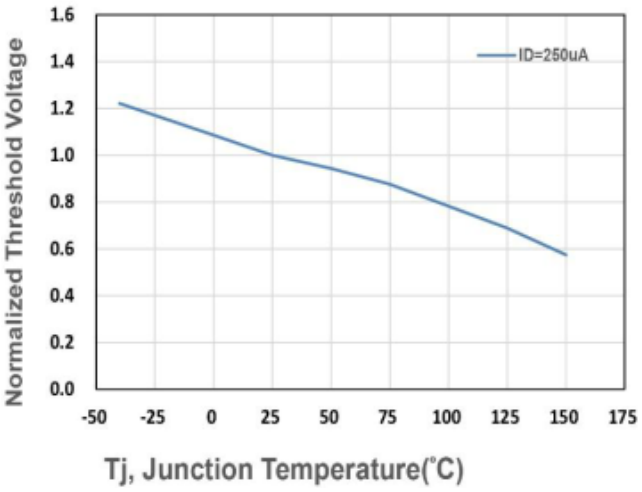


Figure 4. Gate Threshold Voltage

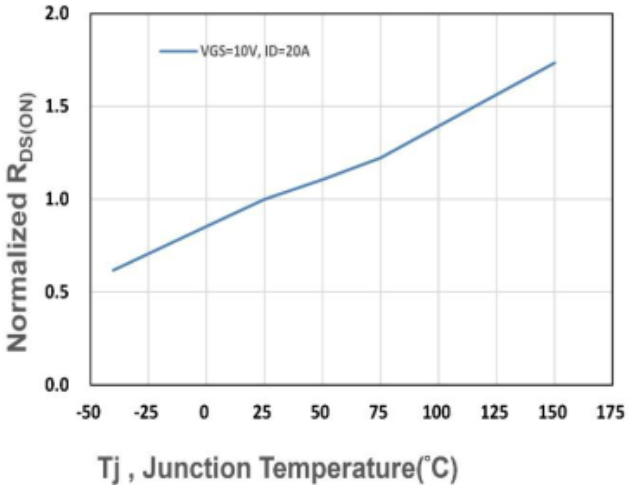


Figure 5. Drain-Source On Resistance

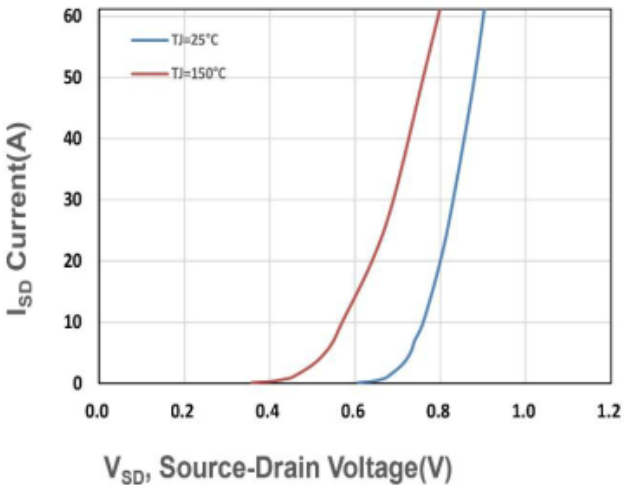


Figure 6. Source Drain Diode Forward

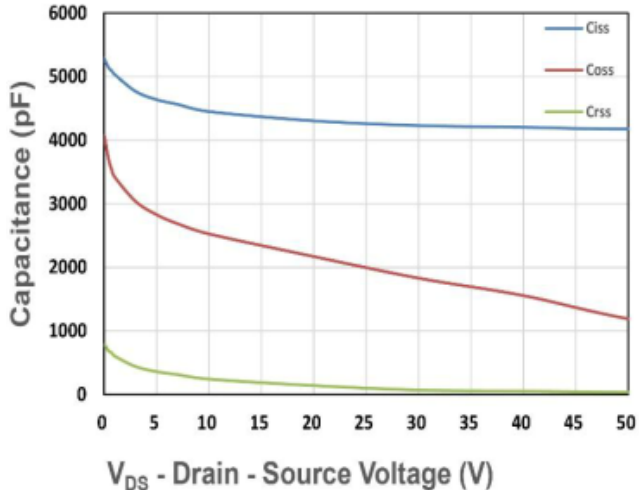


Figure 7. Capacitance

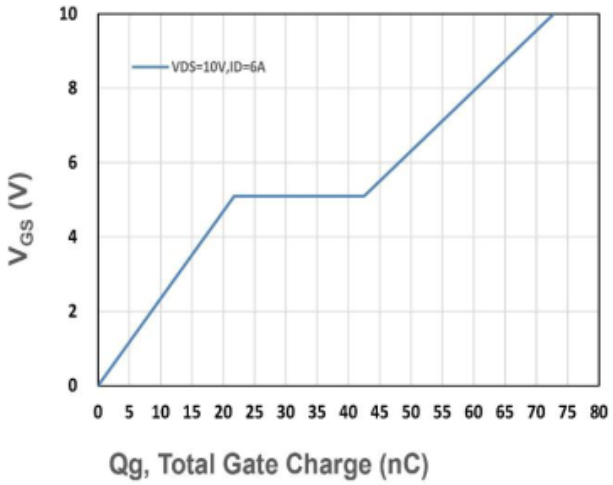


Figure 8. Gate Charge Characteristics

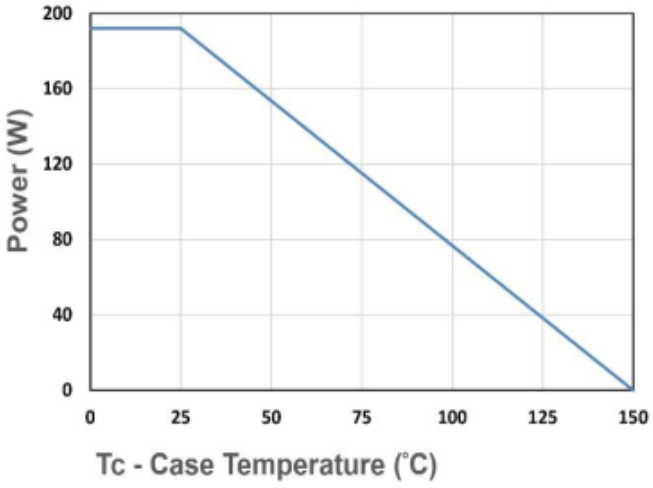


Figure 9. Power Dissipation

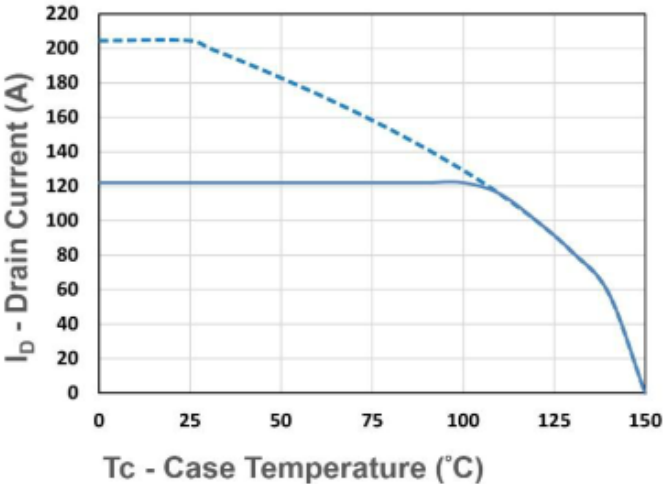


Figure10. Drain Current

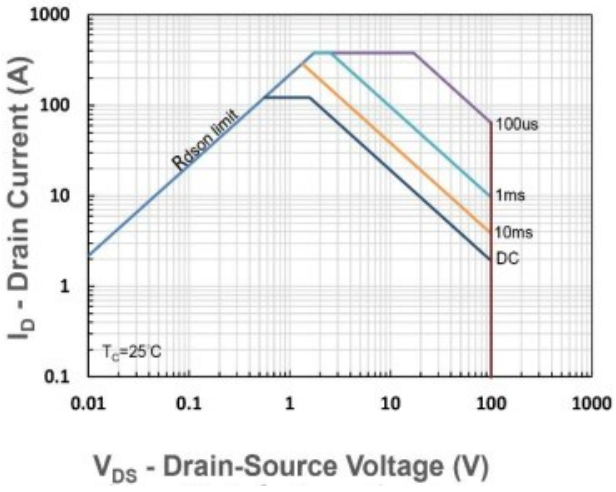


Figure 11. Safe Operating Area

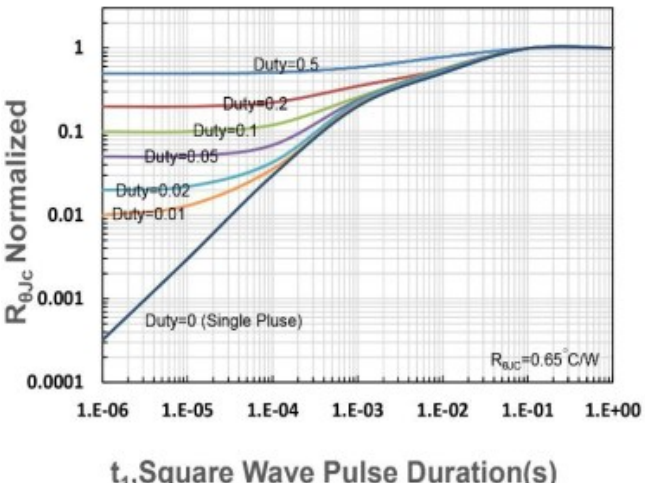
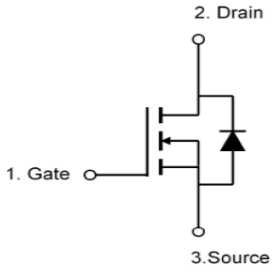
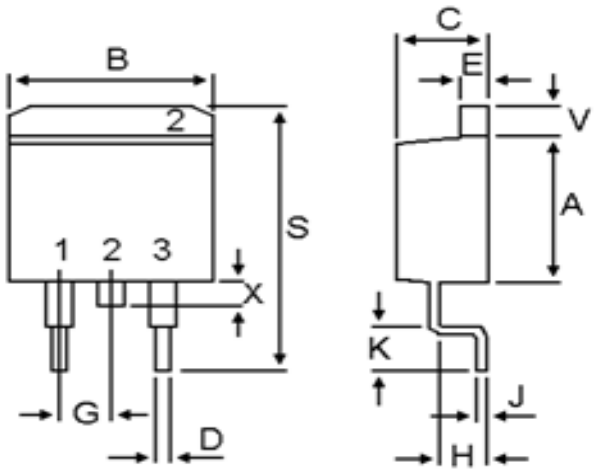


Figure 12. $R_{\theta JC}$ Transient Thermal Impedance

• Circuit diagram



• Package outlines : Dimensions in (mm)



DIM	MILLIMETERS	
	MIN	MAX
A	8.30	9.20
B	9.80	10.40
C	4.30	4.80
D	0.65	0.95
E	1.17	1.43
G	2.39	2.69
H	2.68	3.32
J	0.35	0.65
K	2.29	2.90
S	14.60	15.88
V	1.10	1.50
X	---	2.00

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