

PRODUCT CHARACTERISTICS

VDSS	60V
$R_{DS(on)typ}(V_{GS}=10V)$	34mΩ
$R_{DS(on)typ}(V_{GS}=4.5V)$	38mΩ
ID	20A

FEATURES

- High density cell design for ultra low Rdson
- Fully characterized avalanche voltage and current
- Good stability and uniformity with high EAS

APPLICATION

- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible power supply

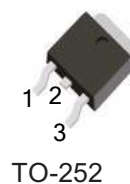
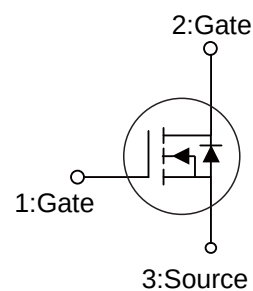
ORDER INFORMATION

Order codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT6530C	TO-251	70 pieces/Tube
N/A	MOT6530D	TO-252	2500 pieces/Reel

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

Parameter		Symbol	Value	Unit
Drain-to-Source Voltage		V _{DS}	60	V
Gate-to-Source Voltage		V _{GS}	±20	V
Continuous Drain Current	T _C = 25°C	I _D	20	A
	T _C = 100°C	I _D	14	A
Pulsed Drain Current		I _{DM}	60	A
Avalanche Energy		E _{AS}	72	mJ
Power Dissipation	T _C = 25°C	P _D	45	W
	T _C = 100°C	P _D	23	W
Thermal Resistance, Junction-to-Case		R _{θJC}	3.3	°C/W
Junction & Storage Temperature Range		T _J , T _{STG}	-55 to 175	°C

Symbol



■ ELECTRICAL CHARACTERISTICS ($T_J=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V I _D =250μA	60	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =60V, V _{GS} =0V	-	-	1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
On characteristics						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1	-	2.5	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =10A	-	34	42	mΩ
		V _{GS} =4.5V, I _D =10A	-	38	46	mΩ
Forward Transconductance	g _{FS}	V _{DS} =5V, I _D =5A	5	-	-	S
Dynamic characteristics						
Input Capacitance	C _{iss}	V _{DS} =20V, V _{GS} =0V, F=1.0MHz	-	717	-	PF
Output Capacitance	C _{oss}		-	40	-	PF
Reverse Transfer Capacitance	C _{rss}		-	36	-	PF
Switching characteristics						
Turn-on Delay Time	t _{d(on)}	V _{DD} =30V, I _b =10A V _{GS} =10V, R _G =3 Ω	-	7	-	nS
Turn-on Rise Time	t _r		-	20	-	nS
Turn-Off Delay Time	t _{d(off)}		-	16	-	nS
Turn-Off Fall Time	t _f	V _{DS} =30V, I _D =10A, V _{GS} =10V	-	23	-	nS
Total Gate Charge	Q _g		-	25	-	nC
Gate-Source Charge	Q _{gs}		-	4.5	-	nC
Gate-Drain Charge	Q _{gd}		-	6.5	-	nC
Drain-source diode characteristics						
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =20A	-	-	1.2	V
Diode Forward Current	I _S		-	-	20	A
Reverse Recovery Time	t _{rr}	T _J = 25°C, I _F =10A di/dt = 100A/μs	-	29	-	nS
Reverse Recovery Charge	Q _{rr}		-	49	-	nC

■ TYPICAL CHARACTERISTICS

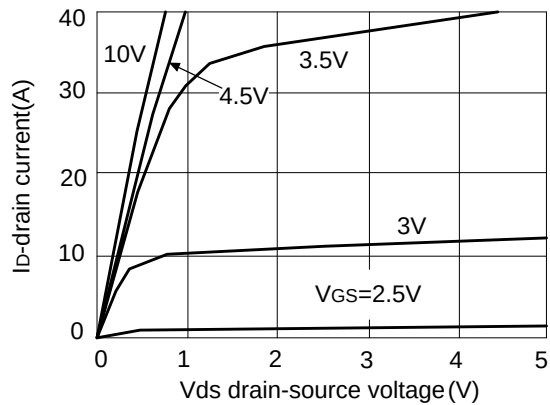


Fig.1 Output characteristics

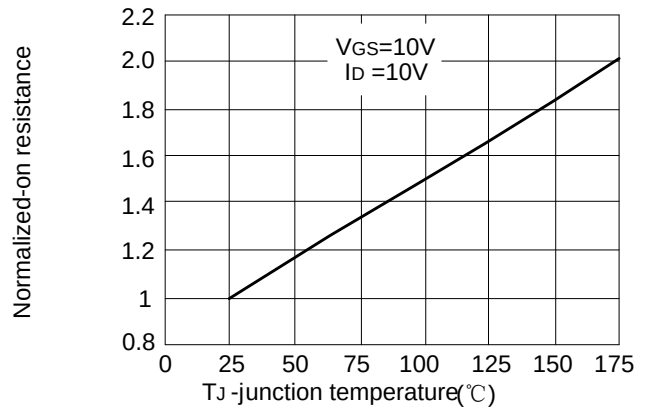


Fig.2 Drain-source on-resistance

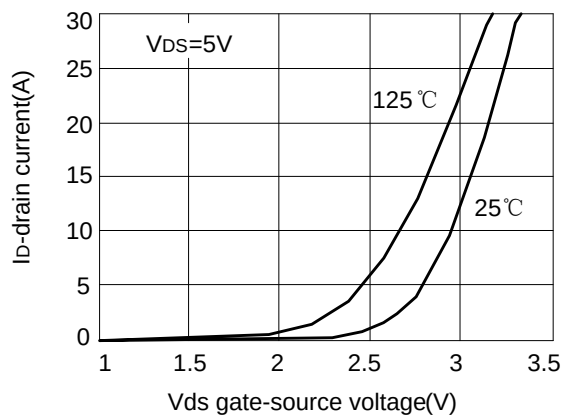


Fig.3 Transfer characteristics

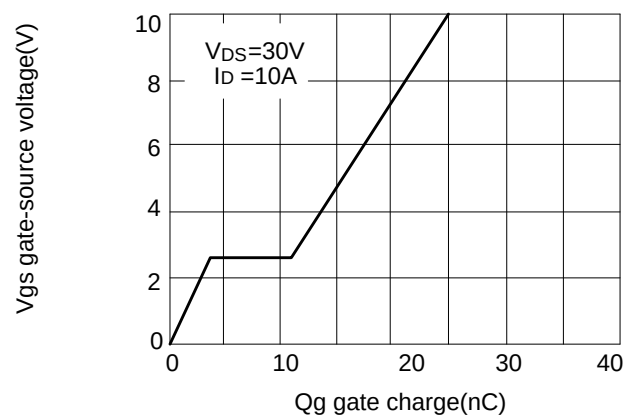


Fig.4 Gate charge

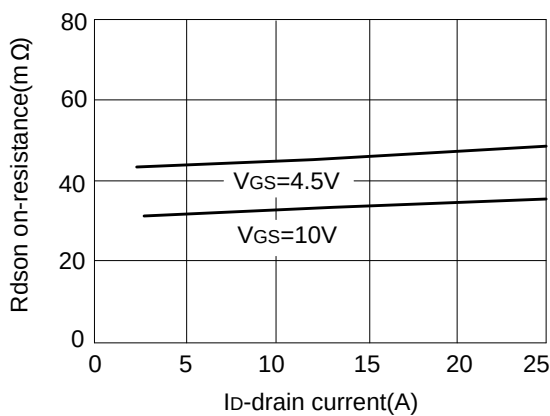


Fig.5 Drain-source on-resistance

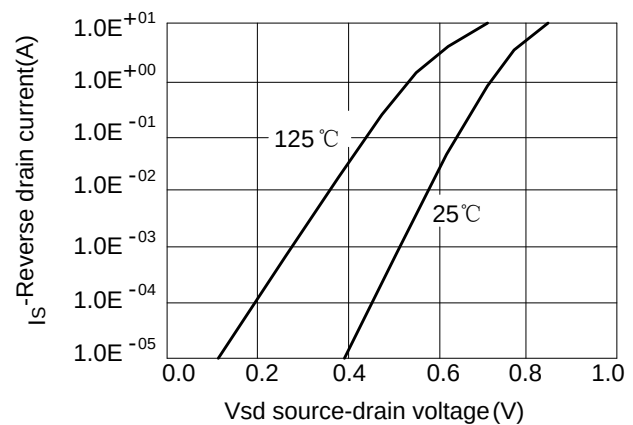


Fig.6 Source-drain diode forward

■ TYPICAL CHARACTERISTICS(Cont.)

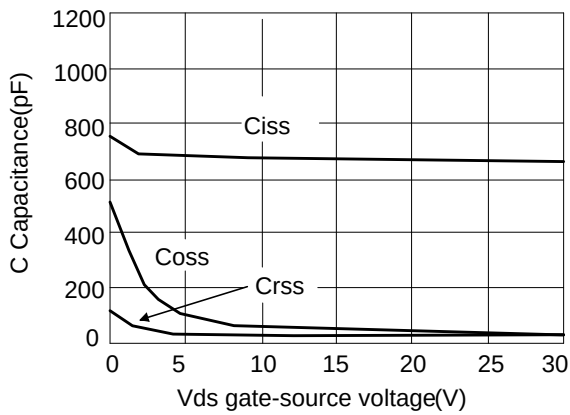


Fig.7 Capacitance vs vds

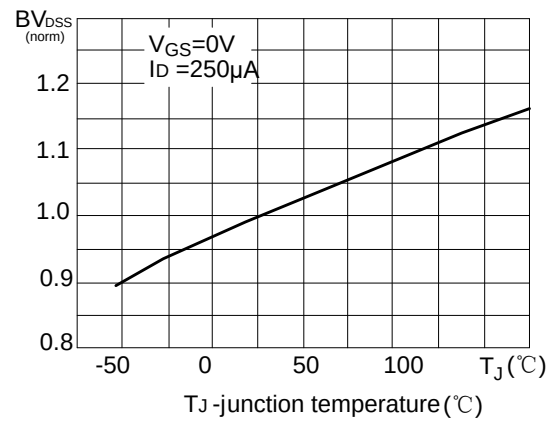


Fig.8 BV_{DSS} vs junction temperature

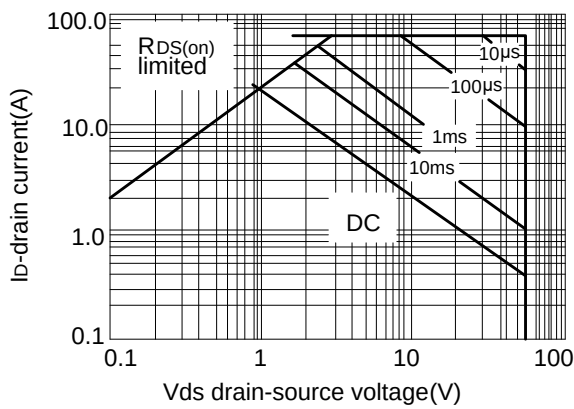


Fig.9 Safe operation area

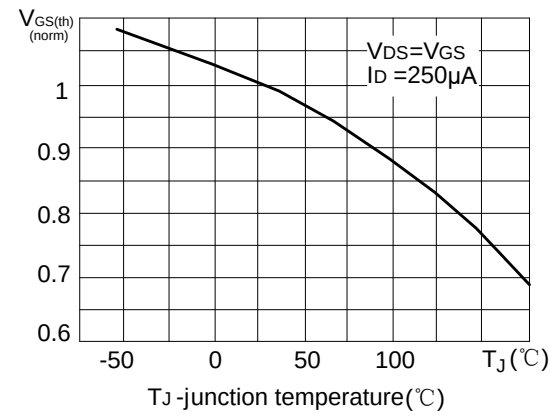


Fig.10 $V_{GS(th)}$ vs junction temperature

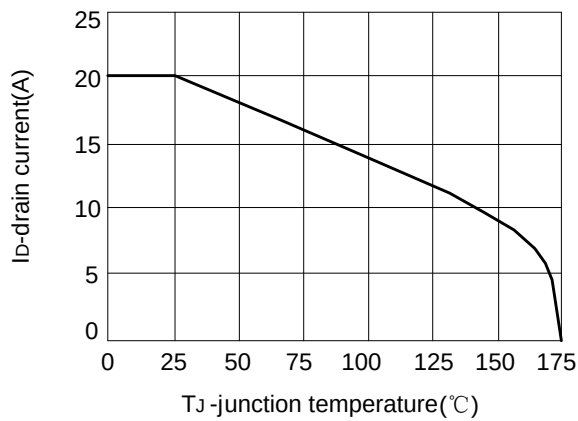
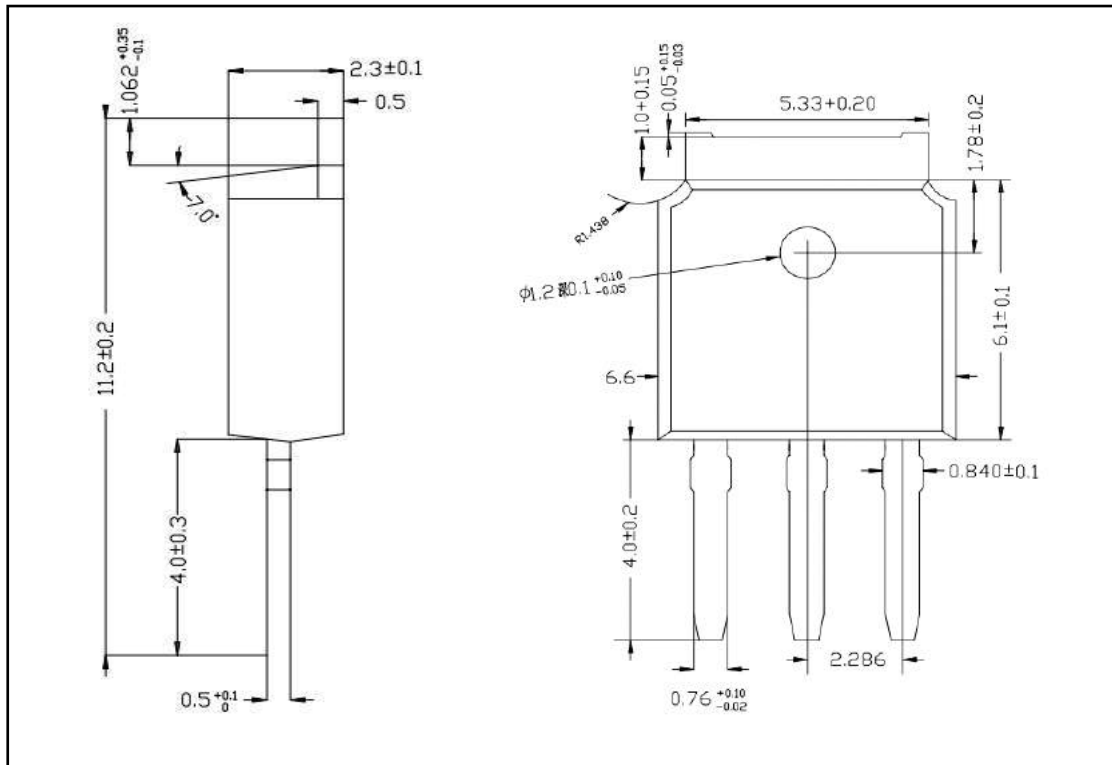


Fig.11 Current de-rating

■ TO-251 PACKAGE OUTLINE DIMENSIONS



■ TO-252 PACKAGE OUTLINE DIMENSIONS

