XXW40P06

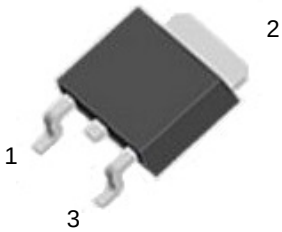
60V P-Channel MOSFET

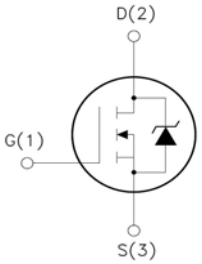
Features:

- ☐ Low Intrinsic Capacitances.
- ☐ Excellent Switching Characteristics.
- ☐ Extended Safe Operating Area.
- ☐ Unrivalled Gate Charge :Qg= 98.6nC (Typ.).
- ☐ BVDSS=-60V,I_D=-40A
- ☐ R_{DS}(on) : 19mΩ (Max) @V_G=10V
- ☐ 100% Avalanche Tested

TO-252

RoHS COMPLIANT





1.Gate (G)
2.Drain (D)
3.Source (S)

Absolute Maximum Ratings (Tc=25℃ Unless Otherwise Noted)

Parameter		Symbol	Maximum Ratings	Unit
Drain-Source Voltage		V_{DS}	-60	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current*	Tc=25℃	I_D	-40	A
	Tc=70℃		-26.3	
Pulsed Drain Current		I_{DM}	-221	A
Maximum Power Dissipation*	Tc=25℃	P_D	90.9	W
	Tc=70℃		63.6	
Operating Junction Temperature		T_J	-55 to 175	℃
Thermal Resistance-Junction to Case*		$R_{\theta JC}$	1.65	℃/W

*The device mounted on 1in^2 FR4 board with 2 oz copper

Electrical Characteristics (T_C =25℃ Unless Otherwise Specified)

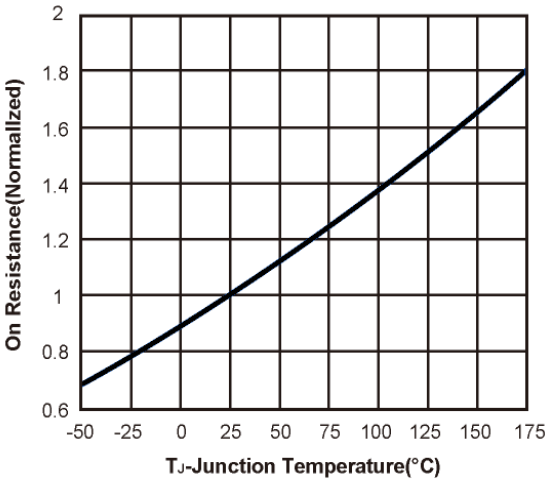
Symbol	Parameter	Limit	Min	Typ	Max	Unit
STATIC						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=-250μA	-60			V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=-250μA	-1		-3	V
I_{GSS}	Gate Leakage Current	V_{DS}=0V, V_{GS}=±20V			±100	nA
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=-60V, V_{GS}=0V			-1	μA
$R_{DS(ON)}$	Drain-Source On-State Resistance[a]	V_{GS}=-10V, I_D= -20A		17	19	mΩ
		V_{GS}=-4.5V, I_D= -20A		19	20.5	
V_{SD}	Diode Forward Voltage	I_S=-30A, V_{GS}=0V		-1.0	-1.5	V
DYNAMIC						
Qg	Total Gate Charge	V_{DS}=-30V, V_{GS}=-10V, I_D=-50A		98.6		nC
Qg	Total Gate Charge	V_{DS}=-30V, V_{GS}=-4.5V, I_D=-50A		50.1		
Qgs	Gate-Source Charge			15.9		
Qgd	Gate-Drain Charge			25.2		
Ciss	Input capacitance	V_{DS}=-15V, V_{GS}=0V, F=1MHz		4480		pF
Coss	Output Capacitance			427		
Crss	Reverse Transfer Capacitance			355		
$t_{d(on)}$	Turn-On Delay Time	V_{DS}=-30V, R_L =30Ω V_{GEN}=-10V, R_G=6Ω		50.7		ns
t_r	Turn-On Rise Time			18.1		
$t_{d(off)}$	Turn-Off Delay Time			221		
t_f	Turn-Off Fall Time			60.1		

Notes:a. Pulse test; pulse width ≦ 300us, duty cycle≦ 2%

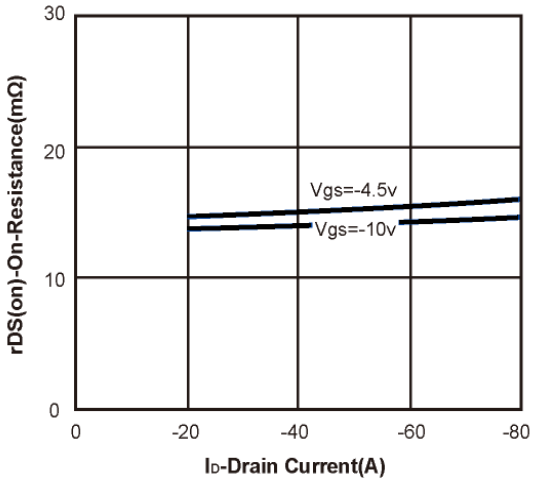
b. Matsuki Electric/ Force mos reserves the right to improve product design, functions and reliability without notice.

Typical Characteristics (T_J =25℃ Noted)

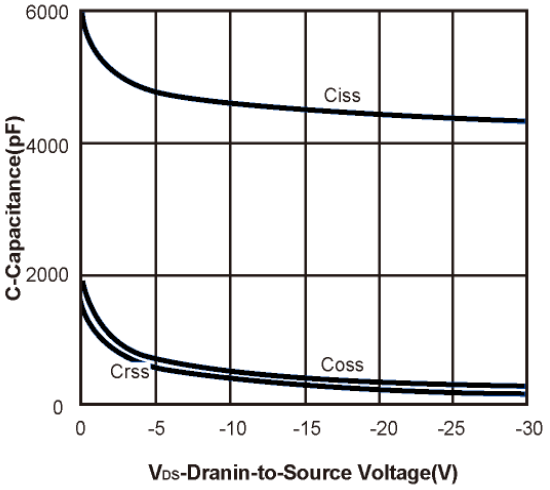
On Resistance vs. Junction Temperature



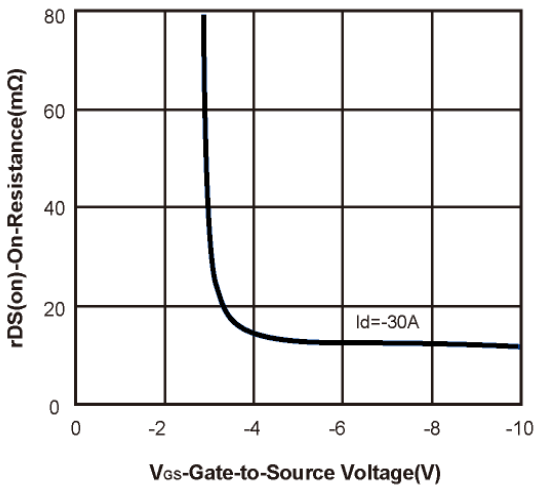
On Resistance vs. Drain Current



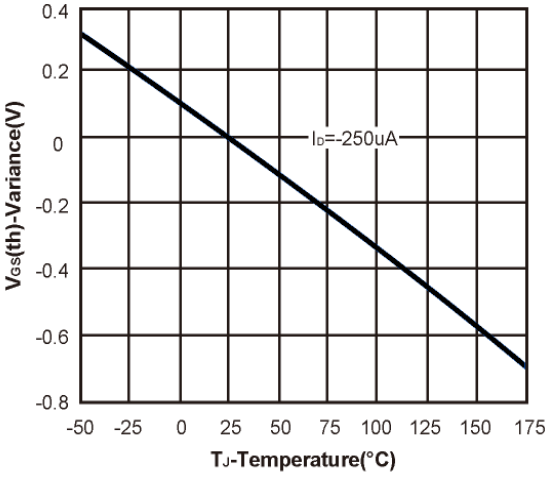
Capacitance



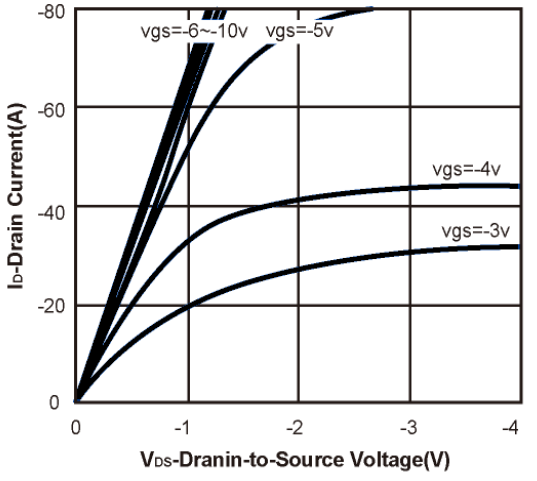
On Resistance vs. Gate-to-Source Voltage



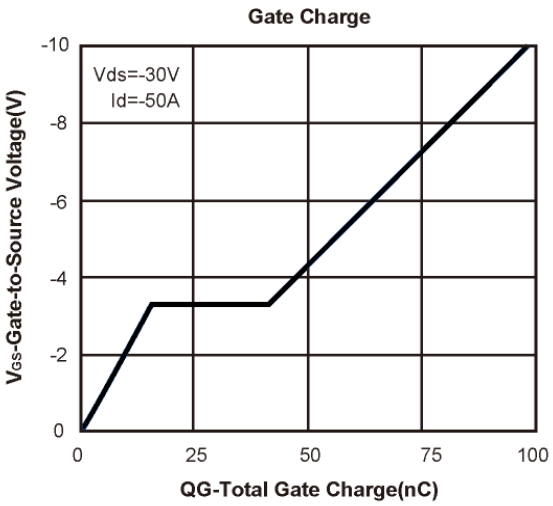
Threshold Voltage

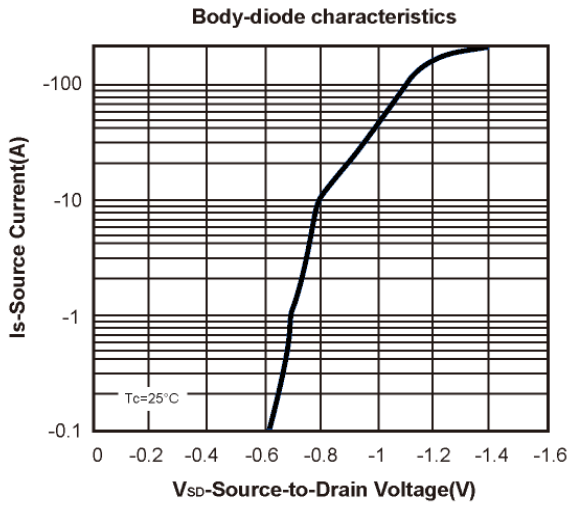


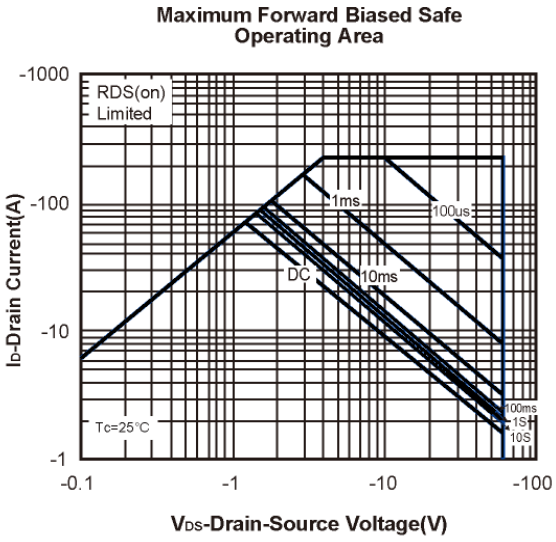
On-Region Characteristics

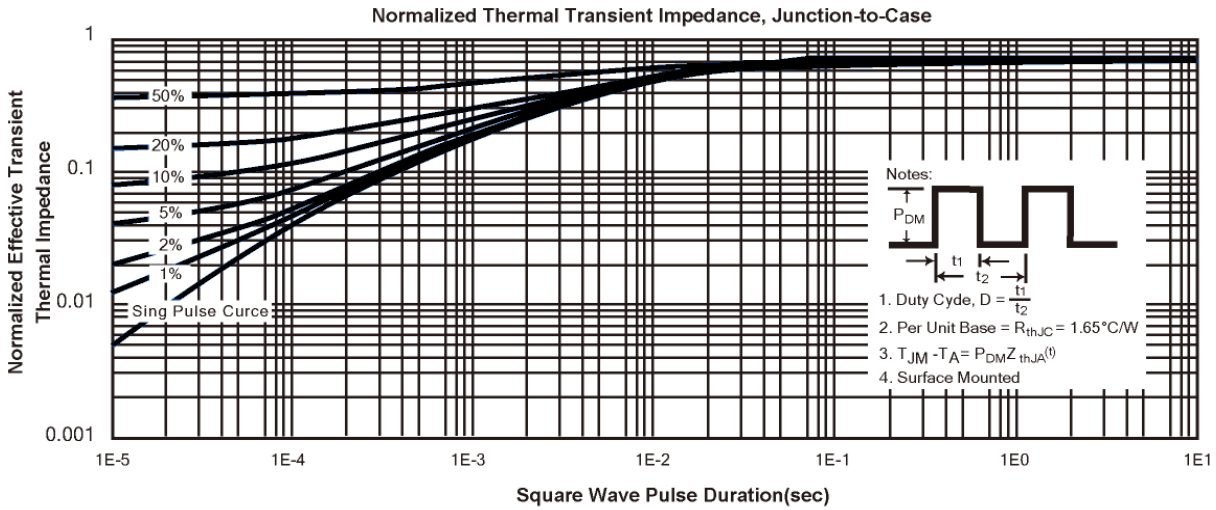


Typical Characteristics (T_J =25℃ Noted)



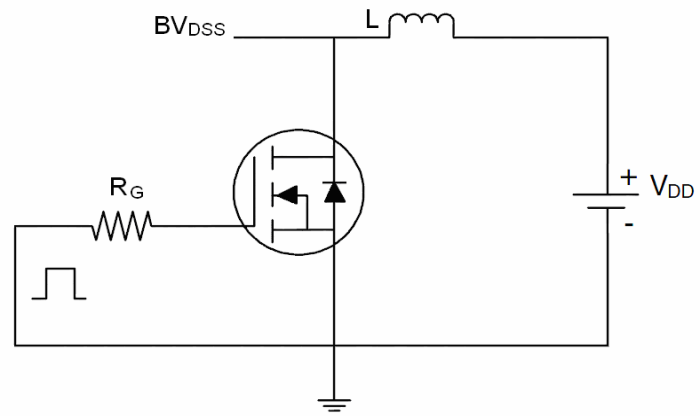




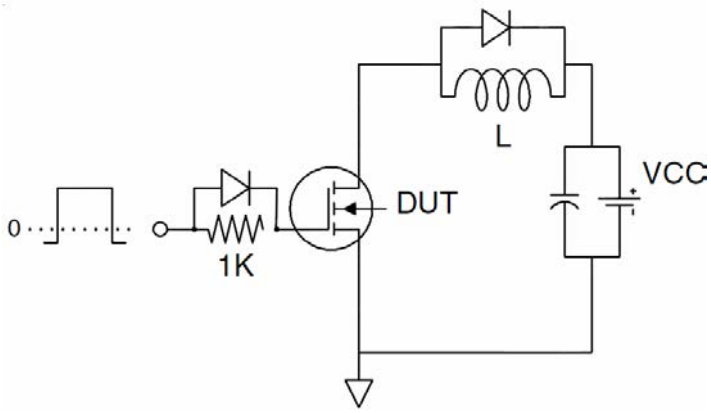


Test Circuit

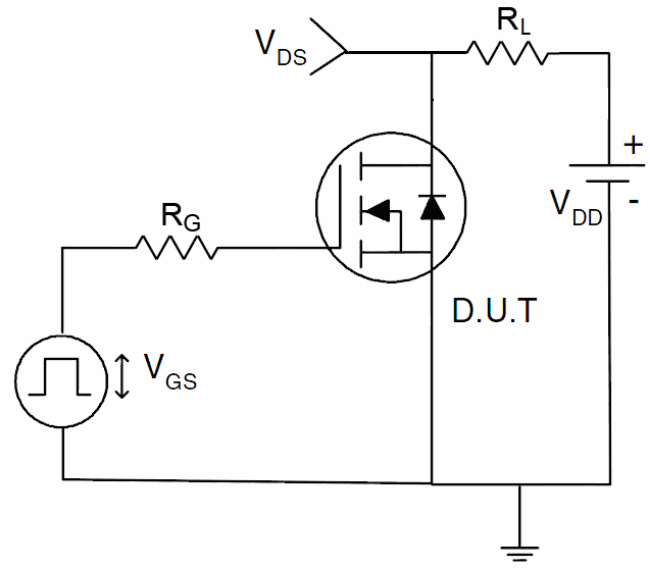
1) $_{AS}$ test Circuit



2) Gate c rge test Circuit



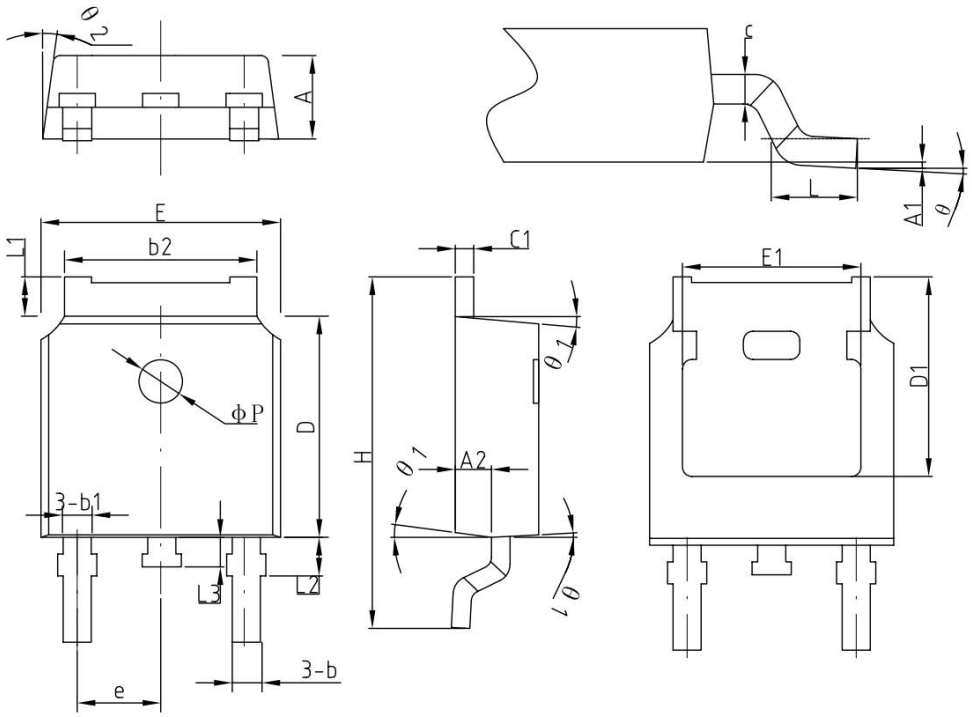
3) witch Time Test Circuit



Package Dimension

TO-252

Units：mm



COMMON DIMENSIONS
(UNITS OF MEASURE=MILLIMETER)

SYMBOL	MIN	NOM	MAX
A	2.2	2.30	2.38
A1	0	–	0.10
A2	0.90	1.01	1.10
b	0.71	0.76	0.86
b1		0.76	
b2	5.13	5.33	5.46
c	0.47	0.50	0.60
c1	0.47	0.50	0.60
D	6.0	6.10	6.20
D1	–	5.30	–
E	6.50	6.60	6.70
E1	–	4.80	–
e		2.286BSC	
H	9.70	10.10	10.40
L	1.40	1.50	1.70
L1	0.90	–	1.25
L2		1.05	
L3		0.8	
ΦP		1.2	
θ	0°	–	8°
θ 1	5°	7°	9°
θ 2	5°	7°	9°