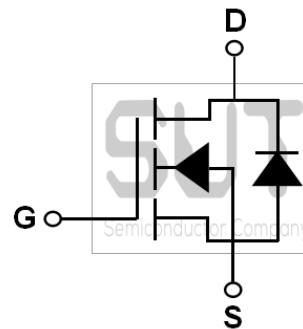


N-Channel 40-V_(D-S) MOSFET

PRODUCT SUMMARY		
B _{VDSS} (V)	R _{DS(on)} (mΩ)(MAX)	I _D (A)
40	2.2@V _{GS} =10V	140

PPAK5x6 Pin Configuration



ABSOLUTE MAXIMUM RATINGS(T_C=25°C UNLESS OTHERWISE NOTED)

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V _{DS}	40	V
Gate-Source Voltage	V _{GS}	±20	V
Drain Current-Continuous (T _C =25°C)(Chip Limitation)	I _D	140	A
Drain Current-Continuous (T _C =100°C)(Chip Limitation)		88	A
Drain Current-Pulsed ¹	I _{DM}	560	A
Single Pulse Avalanche Energy ²	EAS	360	mJ
Single Pulse Avalanche Current ²	IAS	85	A
Power Dissipation (T _C =25°C)	P _D	142	W
Power Dissipation-Derate above 25°C		1.14	W/°C
Storage Temperature Range	T _{STG}	-50 to 150	°C
Operating Junction Temperature Range	T _J	-50 to 150	°C

THERMAL CHARACTERISTICS

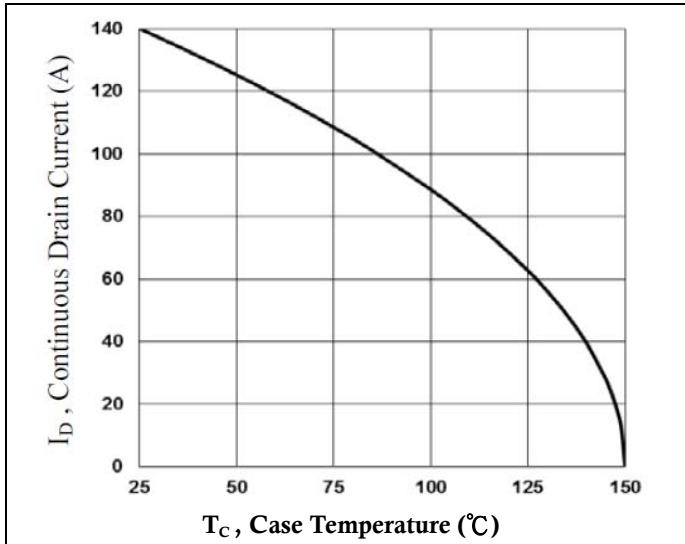
Parameter	Symbol	Typ.	Max.	Unit
Thermal Resistance Junction to ambient	R _{θJA}	---	62	°C/W
Thermal Resistance Junction to Case	R _{θJC}	---	0.88	°C/W

ELECTRICAL CHARACTERISTICS (T _J =25°C UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250uA	40	---	---	V
Drain-Source Leakage Current	I _{DSS}	V _{GS} =0V, V _{DS} =40V, T _J =25°C	---	---	1	uA
		V _{GS} =0V, V _{DS} =32V, T _J =125°C	---	---	10	uA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	---	---	±100	nA
On Characteristics						
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =30A	---	1.7	2.2	mΩ
		V _{GS} =4.5V, I _D =20A	---	2.1	3.0	mΩ
Gate Threshold Voltage	V _{GS(th)}	V _{GS} =V _{DS} , I _D =250uA	1.0	1.6	2.5	V
Forward Transconductance	g _{fs}	V _{DS} =10V, I _D =10A	---	45	---	S
Dynamic and Switching Characteristics						
Total Gate Charge ^{3, 4}	Q _g	V _{GS} =4.5V, V _{DS} =20V, I _D =10A	---	70	140	nC
Gate-Source Charge ^{3, 4}	Q _{gs}		---	15	32	
Gate-Drain Charge ^{3, 4}	Q _{gd}		---	40	80	
Turn-On Delay Time ^{3, 4}	T _{d(on)}	V _{GS} =10V, V _{DD} =20V, R _G =10Ω, I _D =10A	---	24.6	48	ns
Rise Time ^{3, 4}	T _r		---	62.8	120	
Turn-Off Delay Time ^{3, 4}	T _{d(off)}		---	224	440	
Fall Time ^{3, 4}	T _f		---	162	320	
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =25V, F=1MHz	---	8000	12000	pF
Output Capacitance	C _{oss}		---	550	1000	
Reverse Transfer Capacitance	C _{rss}		---	420	800	
Gate Resistance	R _g	V _{GS} =0V, V _{DS} =0V, F=1MHz	---	1.2	2.4	Ω
Drain-Source Diode Characteristics and Maximum Ratings						
Continuous Source Current	I _S	V _G =V _D =0V, Force Current	---	---	140	A
Pulsed Source Current	I _{SM}		---	---	280	A
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =1A, T _J =25°C	---	---	1.0	V
Reverse Recovery Time	t _{rr}	V _{GS} =0V, I _S =20A,	---	32	---	ns
Reverse Recovery Charge	Q _{rr}	di/dt=100A/μs, T _J =25°C	---	19	---	nC

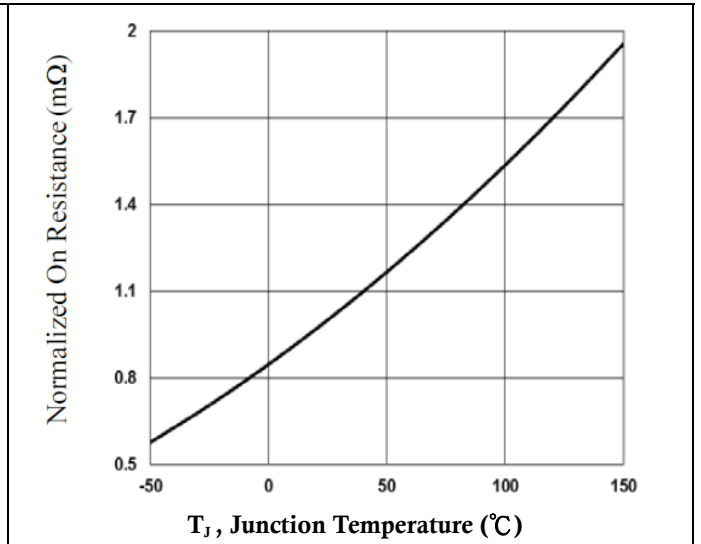
Note :

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. V_{GS}=10V, V_{DD}=25V, L=0.1mH, I_{AS}=85A, R_G=25Ω, Starting T_J=25°C.
3. The data tested by pulsed, pulse width ≤ 300us, duty cycle ≤ 2%.
4. Essentially independent of operating temperature.

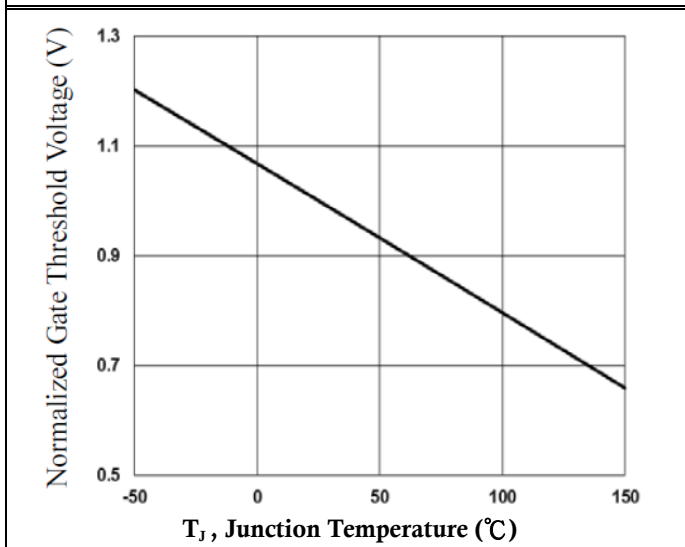
40V N-Channel MOSFETs



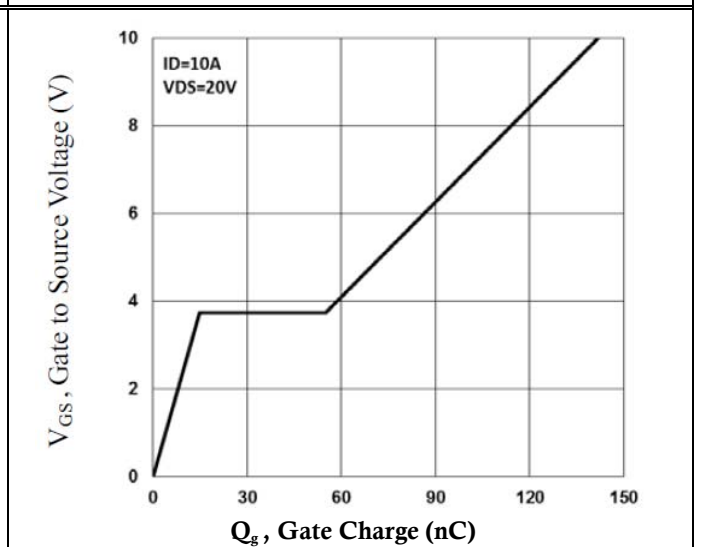
Continuous Drain Current vs. T_C



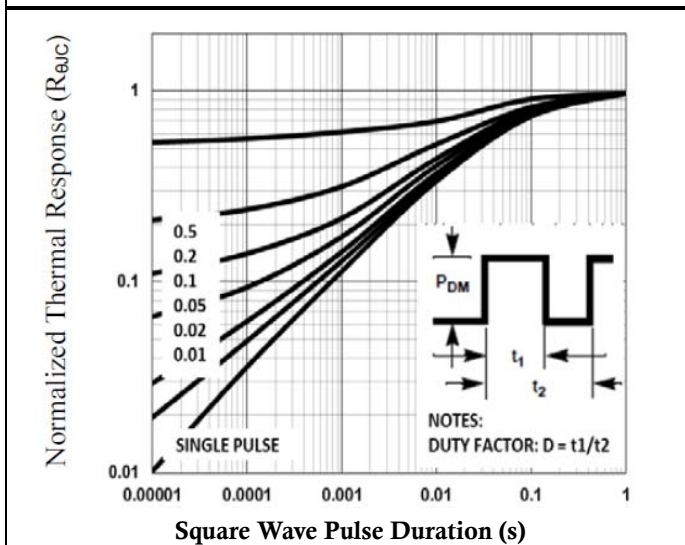
Normalized $R_{DS(ON)}$ vs. T_J



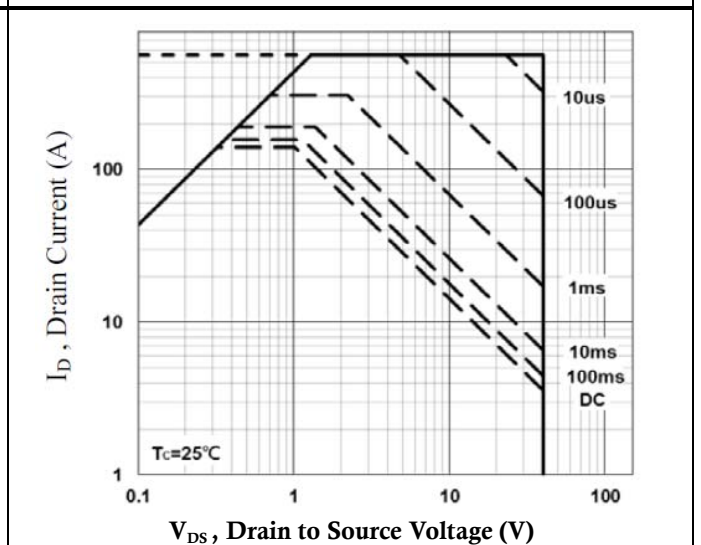
Normalized V_{th} vs. T_J



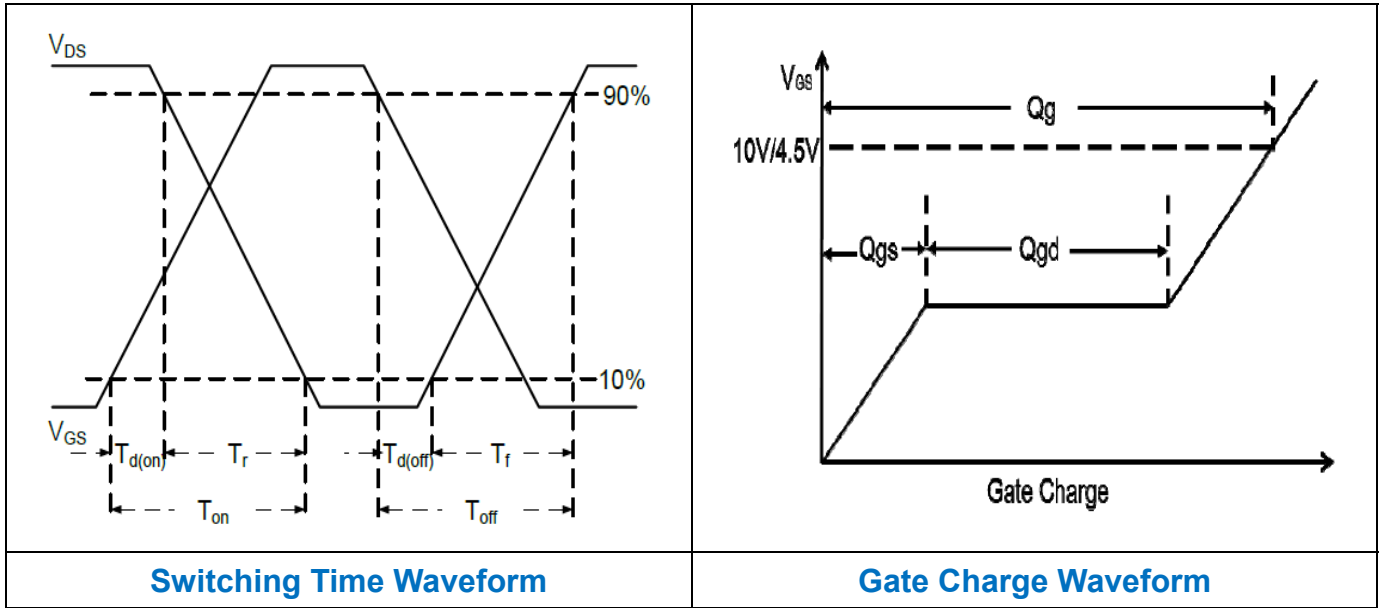
Gate Charge Characteristics



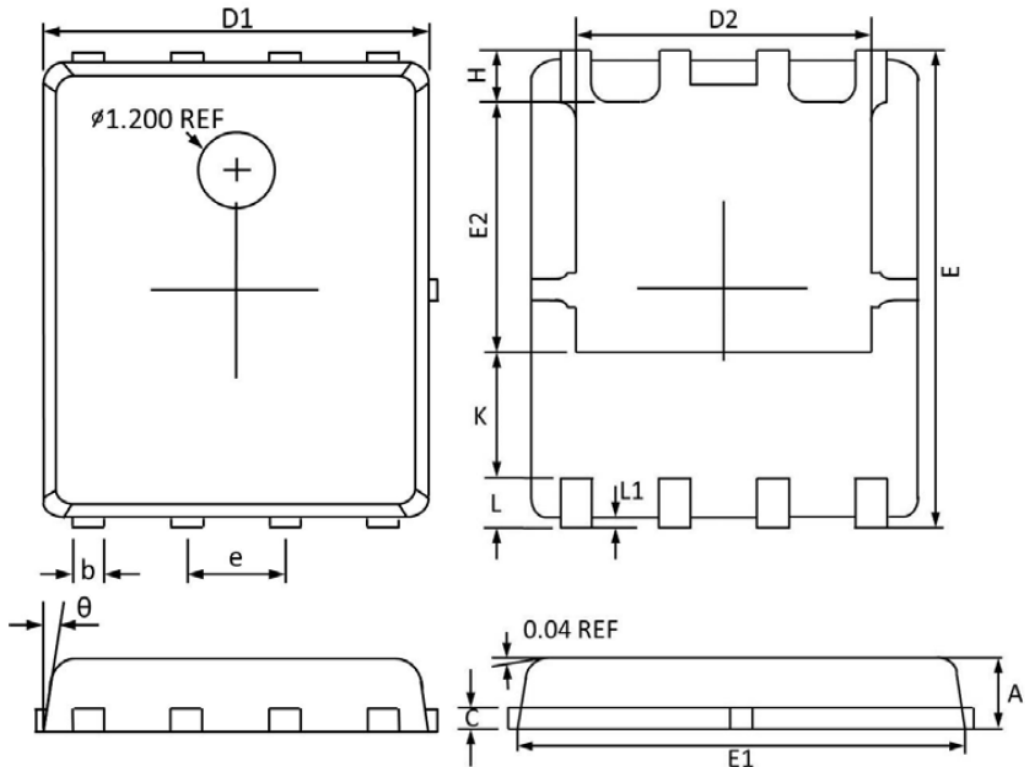
Normalized Transient Impedance



Maximum Safe Operation Area



PPAK5x6 PACKAGE INFORMATION



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MAX	MIN	MAX	MIN
A	1.100	0.800	0.043	0.031
b	0.510	0.330	0.020	0.013
C	0.300	0.200	0.012	0.008
D1	5.100	4.800	0.201	0.189
D2	4.100	3.610	0.161	0.142
E	6.200	5.900	0.244	0.232
E1	5.900	5.700	0.232	0.224
E2	3.780	3.350	0.149	0.132
e	1.270(BSC)		0.050(BSC)	
H	0.700	0.410	0.028	0.016
K	1.500	1.100	0.059	0.043
L	0.710	0.510	0.028	0.020
L1	0.200	0.060	0.008	0.002
θ	12°	0°	12°	0°