



Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
60V	8.5mΩ@10V	16A
	12mΩ@4.5V	

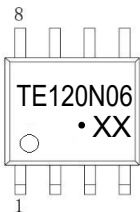
Feature

- Split Gate Trench Technology
- Low $R_{DS(ON)}$
- Low Gate Charge
- Low Gate Resistance
- 100% UIS Tested

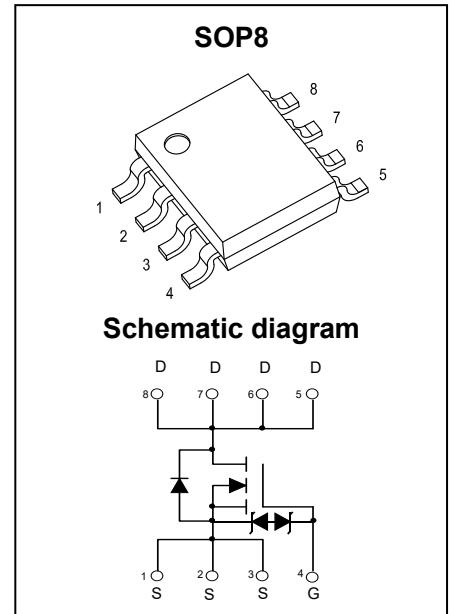
Application

- Power Switching Application

MARKING:



TE120N06 = Device Code
XX = Date Code
Solid Dot = Green Indicator



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain - Source Voltage	V_{DS}	60	V
Gate - Source Voltage	V_{GS}	±20	V
Continuous Drain Current ¹	I_D	16	A
Pulsed Drain Current ²	I_{DM}	48	A
Single Pulsed Avalanche Current ³	I_{AS}	18	A
Single Pulsed Avalanche Energy ³	E_{AS}	49	mJ
Power Dissipation ⁵	P_D	1.67	W
Thermal Resistance from Junction to Ambient ⁶	$R_{\theta JA}$	75	$^\circ\text{C}/\text{W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~ +150	$^\circ\text{C}$

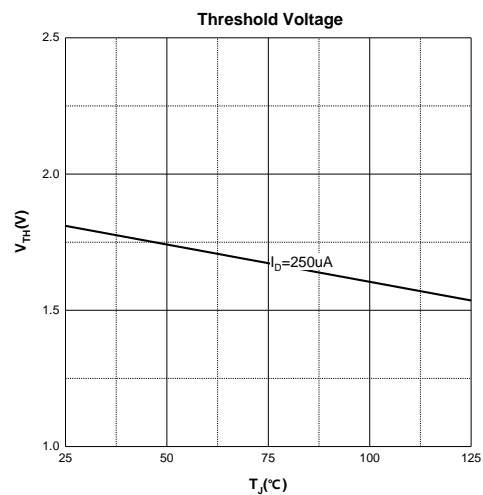
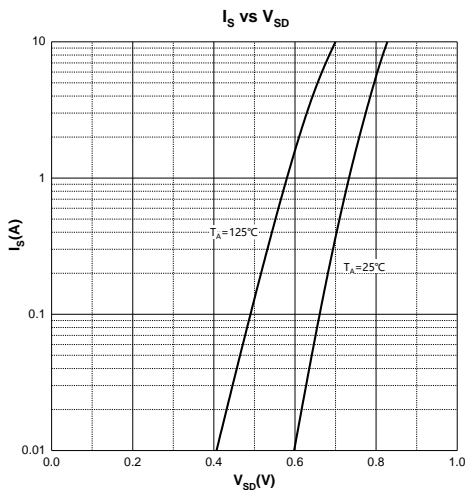
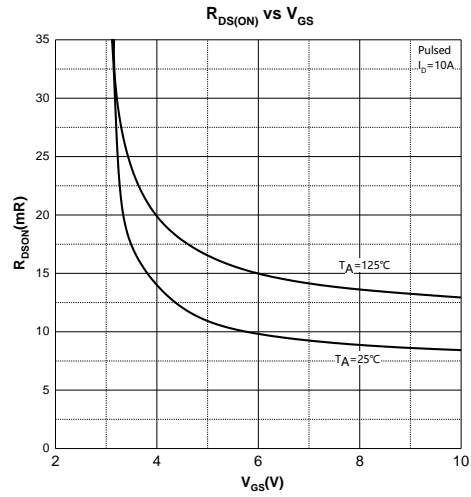
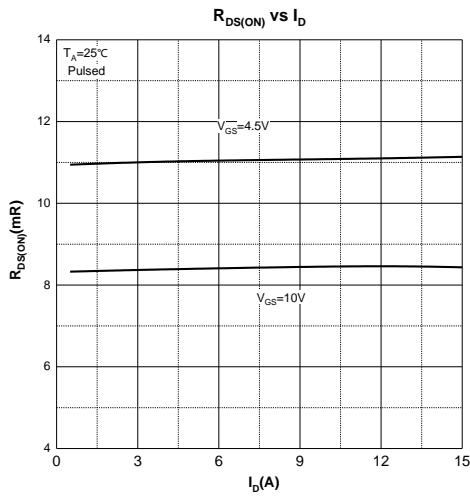
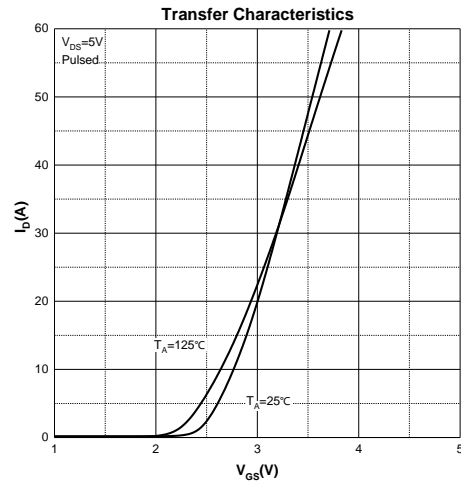
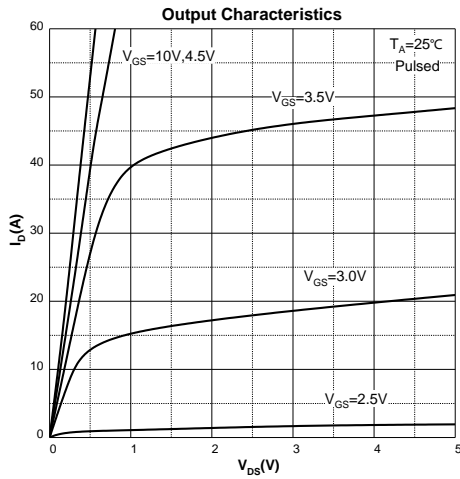
MOSFET ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$ unless otherwise noted)

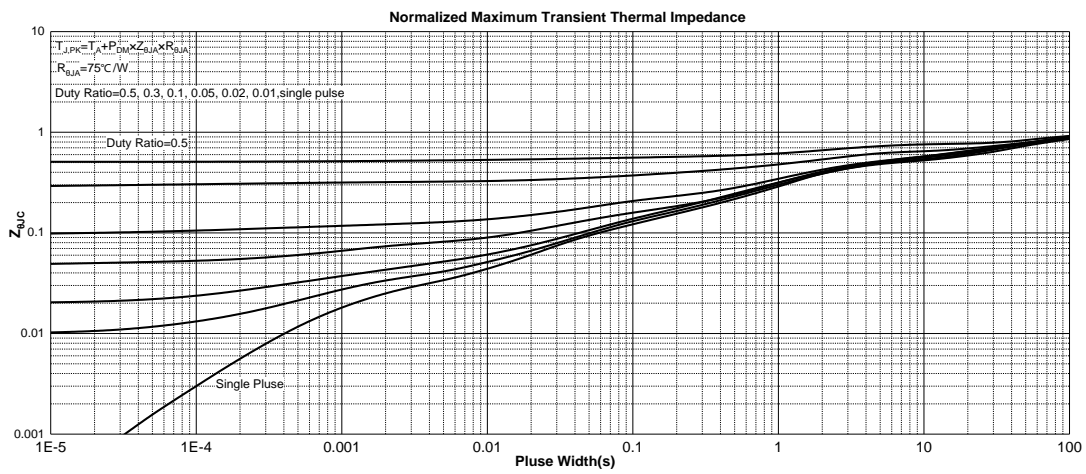
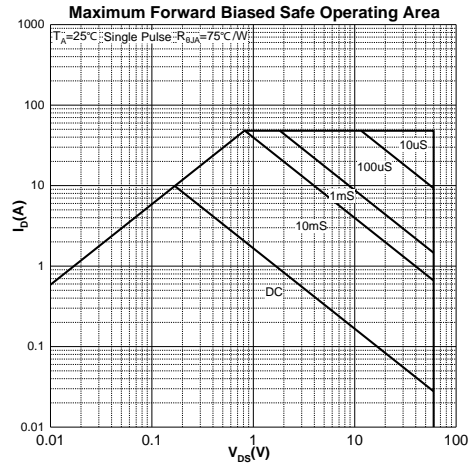
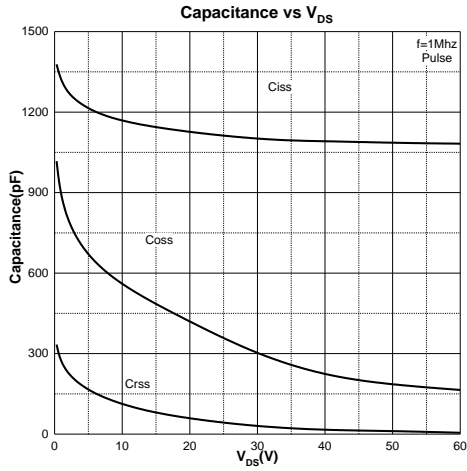
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain - Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	60			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 60V, V_{GS} = 0V$			1	μA
Gate - Body Leakage Current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	nA
On Characteristics⁴						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.0	2.0	3.0	V
Drain-source On-resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 10A$		8.5	12	m Ω
		$V_{GS} = 4.5V, I_D = 10A$		12	18	
Forward Transconductance	g_{FS}	$V_{DS} = 5V, I_D = 12A$		45		S
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS} = 30V, V_{GS} = 0V, f = 1MHz$		1100		pF
Output Capacitance	C_{oss}			298		
Reverse Transfer Capacitance	C_{rss}			30		
Gate Resistance	R_g	$V_{DS} = 0V, V_{GS} = 0V, f = 1MHz$		1.5		Ω
Switching Characteristics						
Total Gate Charge	Q_g	$V_{DS} = 30V, V_{GS} = 10V, I_D = 12A$		15		nC
Gate-source Charge	Q_{gs}			3		
Gate-drain Charge	Q_{gd}			4		
Turn-on Delay Time	$t_{d(on)}$	$V_{DD} = 30V, V_{GS} = 10V, R_L = 2.5\Omega$ $R_G = 3\Omega$		6.5		ns
Turn-on Rise Time	t_r			3.5		
Turn-off Delay Time	$t_{d(off)}$			20		
Turn-off Fall Time	t_f			3		
Source - Drain Diode Characteristics						
Diode Forward Voltage ⁴	V_{SD}	$V_{GS} = 0V, I_S = 10A$			1.2	V

Notes :

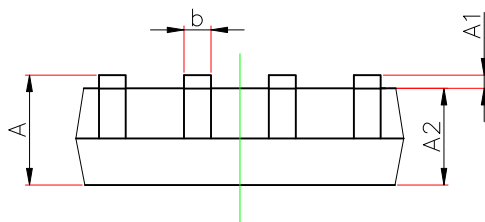
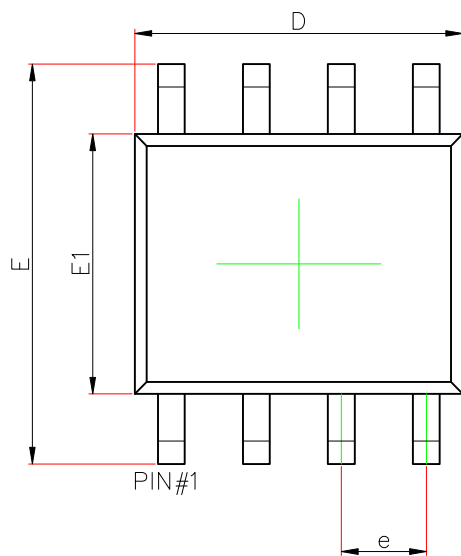
- 1.The maximum current rating is limited by package.
- 2.Pulse Test : Pulse Width $\leq 10\mu s$, duty cycle $\leq 1\%$.
- 3.EAS condition: $V_{DD} = 25V, V_{GS} = 10V, L = 0.3mH, R_G = 25\Omega$ Starting $T_J = 25^\circ\text{C}$.
- 4.Pulse Test : Pulse Width $\leq 300\mu s$, duty cycle $\leq 2\%$.
- 5.The power dissipation P_D is limited by $T_{J(MAX)} = 150^\circ\text{C}$.
- 6.Device mounted on $1in^2$ FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ\text{C}$.

Typical Characteristics





SOP8 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.156	0.250	0.006	0.010
D	4.700	5.100	0.185	0.201
e	1.270(BSC)		0.050(BSC)	
E	5.800	6.200	0.228	0.244
E1	3.700	4.100	0.146	0.161
L	0.400	1.270	0.016	0.05
θ	0°	8°	0°	8°