

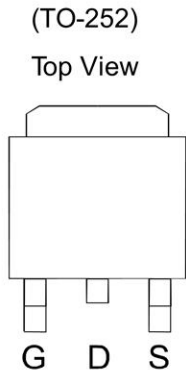
**Features**

- $V_{DS} = -30V, I_D = -90A$
- $R_{DS(ON)} \leq 8m\Omega @ V_{GS} = -10V$
- $R_{DS(ON)} \leq 11m\Omega @ V_{GS} = -4.5V$

**Application**

- Load/Power Switching
- Interfacing Switching
- Battery Management for Ultra Small Portable
- Electronics
- Logic Level Shift

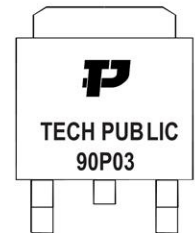
**Package and Pin Configuration**



1. GATE
2. DRAIN
3. SOURCE



**Marking:**



**Absolute Maximum Ratings** ( $T_A = 25^\circ C$  Unless Otherwise Noted)

Parameter	Symbol	Maximum Ratings	Unit
Drain-Source Voltage	$V_{DS}$	-30	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current*	$I_D$	$T_C = 25^\circ C$	-90
		$T_C = 70^\circ C$	-65
Pulsed Drain Current (Package limited)	$I_{DM}$	-200	A
Maximum Power Dissipation*	$P_D$	$T_C = 25^\circ C$	83
		$T_C = 70^\circ C$	53
Operating Junction Temperature	$T_J$	-55 to 150	$^\circ C$
Thermal Resistance-Junction to Case*	$R_{\theta JC}$	1.5	

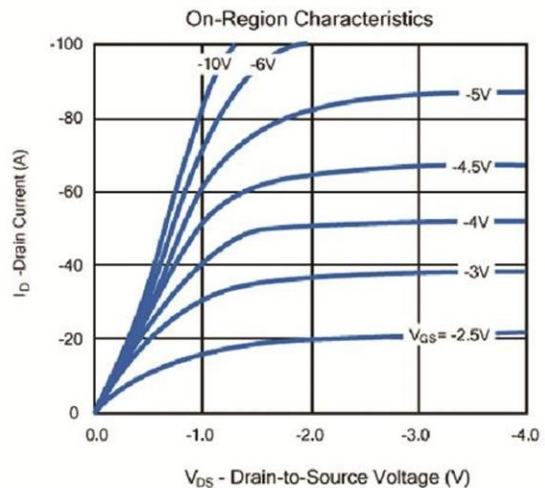
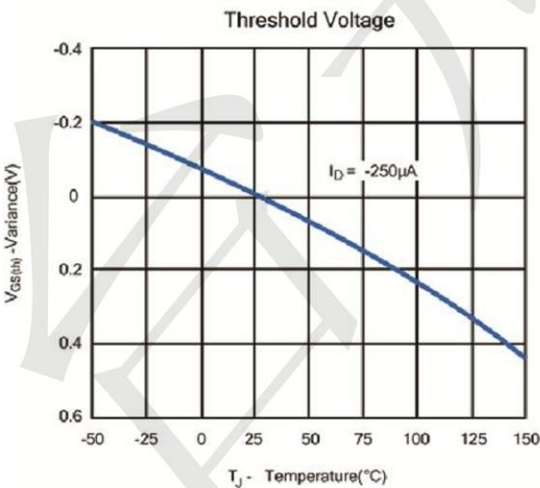
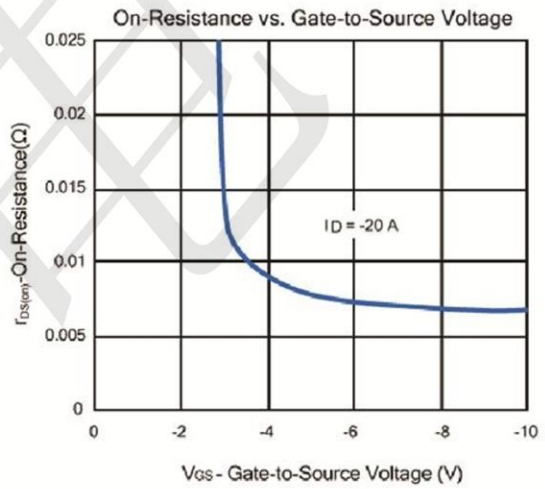
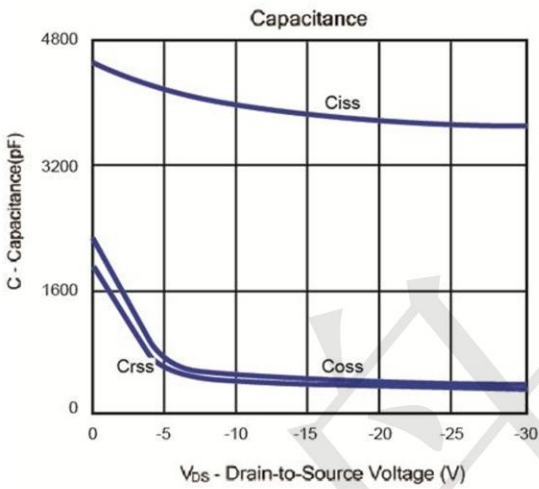
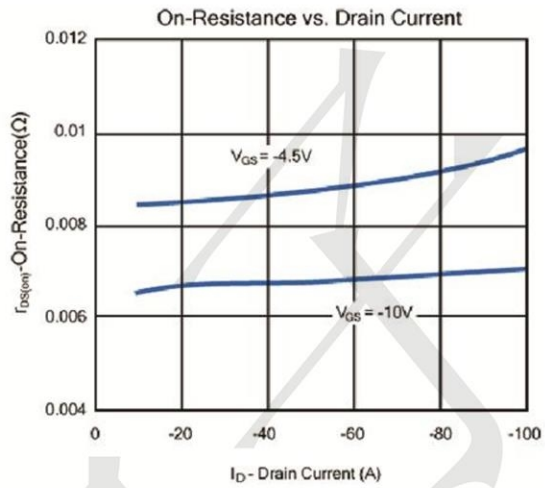
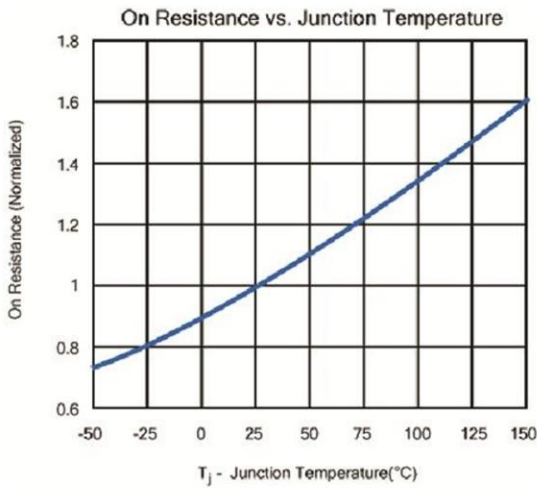
**Electrical Characteristics** (TA=25°C Unless Otherwise Specified)

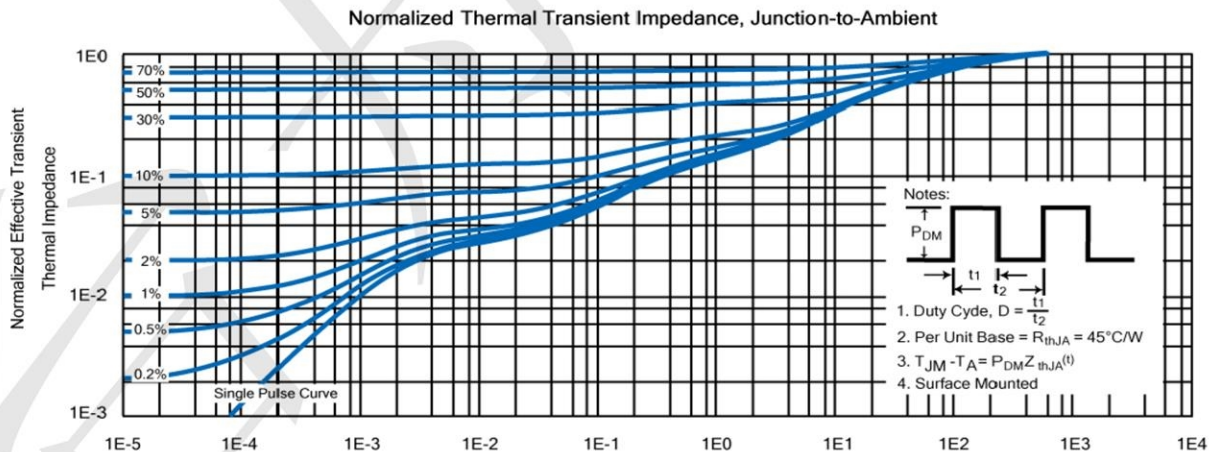
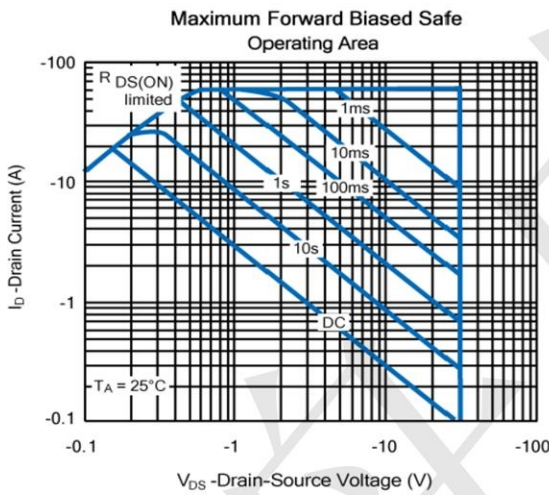
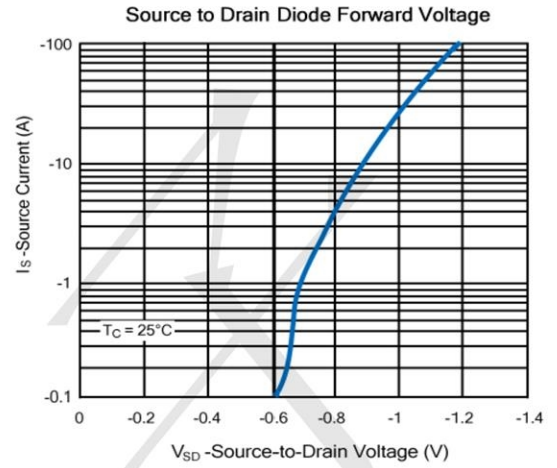
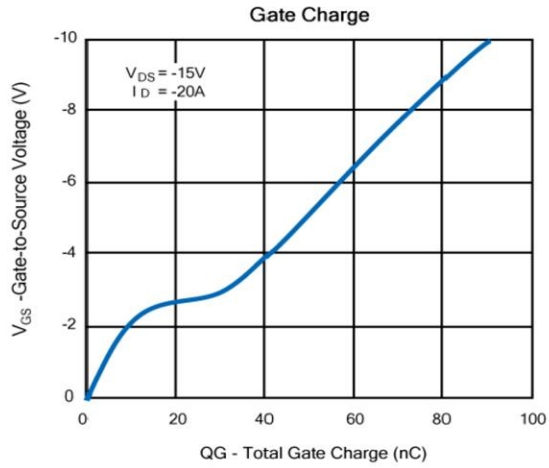
Symbol	Parameter	Limit	Min	Typ	Max	Unit
<b>STATIC</b>						
V <sub>(BR)DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =-250 μA	-30			V
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250 μA	-1		-3	V
I <sub>GSS</sub>	Gate Leakage Current	V <sub>DS</sub> =0V, V <sub>GS</sub> =±20V			±100	nA
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> =-30V, V <sub>GS</sub> =0V			-1	μA
R <sub>DS(ON)</sub>	Drain-Source On-State Resistance <sup>a</sup>	V <sub>GS</sub> =-10V, I <sub>D</sub> = -20A		6.7	8	mΩ
		V <sub>GS</sub> =-4.5V, I <sub>D</sub> = -20A		8.4	11	
V <sub>SD</sub>	Diode Forward Voltage	I <sub>S</sub> =-1A, V <sub>GS</sub> =0V		-0.7	-1.2	V
<b>DYNAMIC</b>						
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =-15V, V <sub>GS</sub> =-10V, I <sub>D</sub> =-20A		88		nC
Q <sub>g</sub>	Total Gate Charge			44		
Q <sub>gs</sub>	Gate-Source Charge	V <sub>DS</sub> =-15V, V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-20A		12.5		
Q <sub>gd</sub>	Gate-Drain Charge			19.5		
C <sub>iss</sub>	Input capacitance			3887		pF
C <sub>oss</sub>	Output Capacitance	V <sub>DS</sub> =-15V, V <sub>GS</sub> =0V, F=1MHz		432		
C <sub>rss</sub>	Reverse Transfer Capacitance			372		
t <sub>d(on)</sub>	Turn-On Delay Time			48		ns
t <sub>r</sub>	Turn-On Rise Time	V <sub>DS</sub> =-15V, R <sub>L</sub> =15Ω		20		
t <sub>d(off)</sub>	Turn-Off Delay Time	V <sub>GS</sub> =-10V, R <sub>G</sub> =6Ω		170		
t <sub>f</sub>	Turn-Off Fall Time	I <sub>D</sub> =-1A		54		

Notes: a. Pulse test: pulse width ≤ 300us, duty cycle ≤ 2%, Guaranteed by design, not subject to production testing.

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

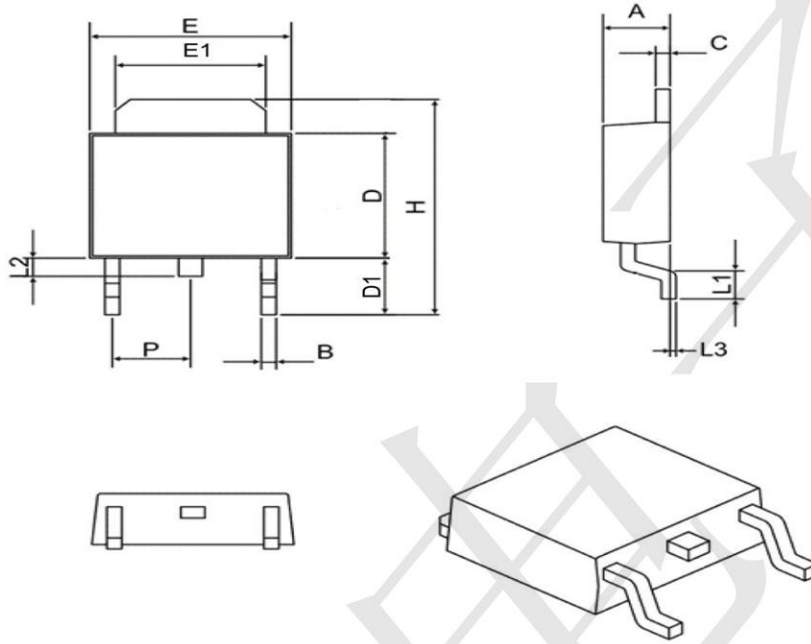
## Typical Characteristics





**Figure 11 Normalized Maximum Transient Thermal Impedance**

**TO252 Package Information**



SYMBOL	MIN	MAX
A	2.10	2.50
B	0.40	0.90
C	0.40	0.90
D	5.30	6.30
D1	2.20	2.90
E	6.30	6.75
E1	4.80	5.50
L1	0.90	1.80
L2	0.50	1.10
L3	0.00	0.20
H	8.90	10.40
P	2.30 BSC	

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